A SARCEE GRAMMAR

Eung-Do Cook

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Dedicated to the memory of
Edward Sapir,
Mabel Dodginghorse, and
Daisy Otter

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ACKNOWLEDGMENTS

In the summer of 1922 Edward Sapir visited the Sarcee Reserve and recorded in seven volumes of notebooks lexical and textual material as narrated by John Whitney. It is this body of material that constitutes the basic data of this book. In 1966, almost half a century after Sapir's field work, I was fortunate to be acquainted with Sapir's material thanks to two of his students who became eminent scholars in Amerindian studies—the late Professors Morris Swadesh and Harry Hoijer—who made arrangements with the help of Victor Golla to make available to me through the University of Alberta, a copy of Sapir's lexical files and grammar files. Professor Hoijer later lent me Sapir's original field notes, from which a photocopy was made, and left me the original typed version of texts. If I had not had the privilege of studying these materials, I could not have started the book. Although I was fascinated by Sapir's field notes when I first saw them, it was not until I had acquired a few years first-hand experience that I came to appreciate the accuracy of his transcriptions and translations and the depth of understanding of the language that he had obtained in a short period of time. Having used so much of his material in writing this book, I am afraid that I may have inadvertently misrepresented him.

The initial plan for this book was made in 1972 when I was awarded a Killam Senior Research Scholarship by The Canada Council. This scholarship enabled me to work full time on Sarcee, but although most of

the chapters dealing with phonology were written, I was unable to complete the manuscript that year. My other priorities, particularly the preparation of pedagogical material on Chilcotin and Chipewyan, as well as teaching and administrative duties, prevented me from completing the work for several years. I was fortunate again to have a term off during the fall of 1980 with a Killam Resident Fellowship awarded by The University of Calgary. All the chapters dealing with syntax were written during the four-month period when I was released from teaching and administrative responsibilities. Although this book has been supported by many smaller grants from The Canada Council and the Social Sciences and Humanities Research Council of Canada, the actual preparation of the manuscript was supported primarily by the two Killam fellowships, for which I am most grateful. I am also grateful for the kind assistance provided by the senior administrative offices of The University of Calgary during my periods of leave.

Athapaskan linguistic studies have made significant progress during the decade since the project on this book was conceived, particularly in comparative studies by Michael Krauss and his colleagues (James Kari and Jeff Leer) and in syntax by native Navajo speakers, assisted by Kenneth Hale. While I attempted no abstract syntactic analysis (for which, I believe, native or near-native competence is required), I have recently revised the chapters dealing with phonology and morphology in order to examine the Sarcee data from a comparative perspective inspired by new discoveries in some Alaskan Athapaskan, particularly Ahtna as reported by James Kari (1979), with whom I also had a chance to discuss morphological problems, which I gratefully acknowledge.

I will not mention all the names of Sarcee people who have helped me with my field work, but I would like to mention just the two—Mrs. Mabel Dodginghorse and Mrs. Daisy Otter—who helped me most but passed away before the completion of the manuscript. Despite their advanced age and failing health, they were most intelligent, sincere, and patient; indeed they provided me with more than just the linguistic data. Their contribution to this book will continue to help the literacy project now headed by Harley Crowchild, a grandson of Mrs. Otter.

There are many other persons—fellow Athapaskanists, students, and friends—who have helped me directly and indirectly while I was working on this book, but I am unable to mention all of them by name. I am thankful particularly to James Kari who thoroughly read the entire manuscript. His corrections and suggestions made this book more readable, but any remaining errors and inadequacies are entirely my own. I regret that I have not been able to respond to all the criticisms that various readers offered upon reading earlier versions.

I wish to thank Margaret Carter, Charlotte Stewart, and Lynda Costello for typing earlier versions of the manuscript, and I am most thankful to Kathy Officer, who not only typed the final version, but also checked the fine details that had escaped my attention.

Now that this manuscript is completed, I wish to spend some time with my family. I appreciate the support of my wife, Myung Sook, and two sons, Richard and Vincent, who have helped me by giving up many weekend activities and summer holidays.

Introduction

0.00. SARCEE.[1]

The Sarcee Reserve, a 280 square kilometre area of prairie that adjoins the southwest city limits of Calgary, Alberta, has been the home of the Sarcee Indians, now estimated at about 700, since the signing of Treaty No. 7 in 1877. The Sarcee call themselves *Tsúùt'ínà,* which has been translated as 'many people' (Sarcee Culture Program 1979), 'nation tribe' (Curtis 1928), or simply as 'Sarcee' (Sapir, field notes). Aside from the different literal meanings of the word, *Tsúùt'ínà* refers to the Sarcee Indians as a separate ethnic unit. If this word derives historically from *tsò-hú-t'ínà,* 'beaver-there-people,' as suggested by Petitot (see Curtis 1928:162), it lends support to the hypothesis that Sarcee split off from Beaver.

The English word "Sarcee" is believed to have originated from a Blackfoot word *saxsii,* according to slightly different accounts of the etymology (Sarcee Culture Program 1979, Curtis 1928, Honigmann 1956). The animate plural suffix *-(w)ak* is added to the Cree adaptation of the word as shown by such transcriptions as *saxsiiwak* (Honigmann), *sŭsiwŭk* (Curtis), and *sassewuck* (Jenness 1938). The original literal meaning of the word in Blackfoot is indicated by such translations as "Woody Country Indian" (Jenness), "Bold People" (Sarcee Culture Program), and "real (or "true" i.e., bush) Indian" (Honigmann), although such connotation is no longer apparent in the contemporary Blackfoot.

Despite recent efforts to establish a language programme for school children and a literacy programme for adults, Sarcee is on the verge of extinction. It is not easy to estimate accurately the number of Sarcee speakers because the language is no longer the primary means of communication, and native speakers vary in their competence. The surviving speakers of the language have been estimated to number between a dozen and fifty (Chafe 1962, Krauss 1973). The number, of course, varies with the definition of the term "speaker." There is no one who is monolingual in Sarcee; everyone speaks English. Sarcee is rarely used. Two or more old persons, all over sixty, who get together might use the language exclusively. If the speaker is defined in this context, the early estimates are certainly not too conservative. However, the estimate could include those who have limited knowledge of the language and use it in informal conversations with their old folks. Speakers of the latter category are in their forties and fifties; they vary in their competence in Sarcee, and number several dozen.

0.10. RELATIONSHIP TO OTHER ATHAPASKAN LANGUAGES.

How Sarcee is related genetically or otherwise to other Athapaskan languages is still far from clear, although its affinity to Beaver has been suggested more than once since Goddard (1915) alluded to such a relationship. For example, Osgood (1936), quoting Sapir, put Sarcee and Beaver along with Sekani in substock six of the Northern Athapaskan. Comparing the stem-initial consonant developments, Hoijer (1963) grouped Sarcee and Beaver along with Sekani, Kaska, Tahltan, and Ahtna. A much more systematic and thorough comparative study of stem-initial consonants by Krauss (1973), whose primary intention was to demonstrate the absurdity of the results of such a study based on "restricted set of criteria," facetiously put Sarcee, Kaska, Sekani, Ahtna, and a few other languages into a group, but Beaver is grouped separately along with Carrier, Tututni, and Chasta Costa.

Goddard (who worked on Beaver and Chipewyan, among others) proclaimed that Sarcee and Beaver "are hardly mutually intelligible." Unless conducted in the very near future, any mutual intelligibility test involving Sarcee might be too late. Studies must include a thorough dialect survey, as Krauss (1973) suggests if diffusions and convergences are to be taken into consideration. Such phenomena should include comparisons not only of phonology, but also those of morphology and syntax. Recent findings on inflectional and derivational morphology, based mostly on Alaskan Athapaskan and Eyak by Leer (1979) and Kari (1979), will have significant

bearing upon the future course of comparative Athapaskan.

Compared with other Northern Athapaskan languages which are fairly well documented (e.g., Chipewyan, Chilcotin, Carrier, and Ahtna), Sarcee appears to have a simpler phonemic inventory and morphological structure. As discussed in chapter 5, it does not have as rich a derivational process for aspect variation as shown in Ahtna and Chipewyan. Both in nouns and verbs, the allomorphy of person prefixes has become simplified. On the other hand, Sarcee has developed a much more complex tonal system (which is not yet fully understood) and retains several stem-final consonants that are lost in many other Northern Athapaskan languages. Although no systematic comparative study is intended in this book, some details of these phenomena are discussed in appropriate chapters.

0.20. LINGUISTIC STUDY OF SARCEE.

The most important works on Sarcee are based directly or indirectly on the field data that Sapir collected during the summer of 1922 on the Sarcee Reserve. Needless to say, he was fortunate to have recruited a competent bilingual assistant by the name of John Whitney, whose contribution to Sapir's field research should never be underestimated. Sapir published only two papers on this field material, but his paper on pitch accent (1925) proved a major contribution to the comparative study of Athapaskan. Another major work derived from his field notes was Li's study of verb stems (1930), which Krauss (1973) declared "a well-known landmark in Athapaskan studies."

There are a few published items that precede the work of Sapir. John W. Sullivan recorded a Sarcee vocabulary that included numerals, as reported in Palliser (1863); Wilson (1888) also recorded a similar vocabulary. Neither of these is of much linguistic value because of phonetic inaccuracies. Probably the earliest linguistic record of Sarcee is Andrew Graham's vocabulary of twenty-one items, including ten numerals (published in 1969). This was recorded between 1769 and 1771. About a half century later Umfreville (1829) recorded a slightly larger vocabulary (thirty-eight words), including ten numerals. It is difficult to decipher the phonetic values of the transcriptions in these earliest recorded materials. Somewhat more accurate and consistent is a short word list by Petitot (1884), and a surprisingly accurate list of kinship terms is appended to the ethnographic description of the Sarcee by Curtis (1928), who also collected several Sarcee myths (recorded only in English translation, however). One of the stories entitled "His Grandmother Raised Him" is of particular interest, since a similar story is

recorded from Chipewyan and Beaver, among others. The folkloric analysis of these stories, which are apparently of the same origin, might reveal interesting insights into the ethnohistory of the Northern Athapaskan.

Of more substantial linguistic value is a collection of Sarcee texts by Goddard (1915). Like his Chipewyan texts and other works, the phonetic transcription is not as accurate as it should be, but if used with care by those who know the language well, it provides valuable information. An extremely accurate and useful source for comparative studies is a manuscript entitled "Athapaskan Vocabulary" by Young (1939–40). This work contains several hundred vocabulary items from Sarcee, Chipewyan, Beaver, Carrier, and Sekani. Young's transcription of Sarcee vocabulary in this work provides interesting data on the final glottal stop, nasalized vowel, and fluctuation of high vowels (see chapter 1). It is particularly interesting to note that Young's material, which was recorded almost twenty years after Sapir had taken his notes, still reflects the nasality in the final vowel as illustrated by the following comparison:

	Petitot (1884)	Sapir (1922)	Young (1939–40)
'four'	ditchin	díítc'ī̀	díítc'ii
'five'	kulttan	gúùt'áá	gúút'a̱a̱

Notice the final *n* in Petitot's record. There is no trace of nasalized vowel in Sapir's notes, nor in the contemporary material that I have recorded. Young's material, along with Goddard's texts (1915), indicate that the nasalized vowel, which is apparently derivable from the sequence of a vowel plus a tautosyllabic *n*, survived as late as the early forties.

The demise of nasalized vowels must have been followed by the demise of the final glottal stop. It is recorded in Sapir's field notes (although somewhat inconsistently), but there is no trace of that feature in contemporary Sarcee (see 0.41). John Whitney must have been one of the last speakers who retained the final glottal stop.

Another interesting word that is contained in Petitot's list is *intsin* (ìtsíh 'nose'). It cannot be determined whether it was pronounced as [intsin] or [i̱tsi̱] (tones aside) at the time when the word was recorded. In any case, [i̱tsi̱] represents the intermediate stage from which the contemporary form has derived as the nasal vowel became denasalized. What is interesting from the point of view of morphological change (levelling) is that the phonological change of denasalization eliminated the irregular nasal prefixes (prenominal), which still exist in most (if not all) of the other Canadian Athapaskan languages.

While Goddard's texts are not provided with inter-linear translations or notes on usage and grammar, they are very useful for syntactic research, since the style is quite different from that of the texts Sapir collected. In fact, I have presented some of Goddard's material in this book.

Sapir's rich field material was handed over to Harry Hoijer, who kept it until he deposited it with the American Philosophical Society shortly before his death. While the material was in his library, Hoijer worked on nouns, and more than three decades after the publication of Li's verb study, "Sarsi Nouns" was published, co-authored by Hoijer and Joël (1963). In this study nouns are classified according to their morphological characteristics, which would be particularly useful for etymological and comparative studies of Athapaskan.

The Sarcee study, however, was virtually dormant for the half century from the twenties to the turn of the seventies, when I started active field research. My contribution so far has been limited to phonology and morphology. I shall not mention all my papers since Krauss (1973) has already reported on major items and a full bibliography is attached to this book. It may be useful, however, to comment on two items. I presented in Cook (1971a) a systematic account of tones and vowels for the first time. My monograph *Sarcee Verb Paradigms* (1972) is a somewhat abstract account of the verb stem morphology, which is much more regular than it appears on the phonetic surface (see Li 1930).

While some of the essential highlights of my previous work have been incorporated in this book, references are made to specific items for details. This book is an attempt to put together all of my descriptive and theoretical work on Sarcee, which has been my major research interest during the past several years.

0.30. ORGANIZATION OF THE BOOK.

The organization of this book is different from many comparable linguistic descriptions written in a structural framework in that it starts with syntax, proceeds to morphology, and then to phonology. This procedure does not necessarily reflect any theoretical bias, although I believe it would be only natural from the native speaker's point of view.

Chapter 1 deals with the heterogeneity of the data used in this book. This chapter will help the reader understand the materials that are cited from three different sources: Goddard (1915), Sapir (1922 *et al.*, and field data), and Cook (1971a *et al.*, and field notes). Therefore, in order to read sub-

sequent chapters of this book, it is necessary to understand the material in this chapter as well as the orthography presented in the next subsection.

Chapter 2 is almost self-contained in that it is a detailed grammatical outline. The basic syntactic and morphological characteristics are described in this chapter. Those who are not familiar with the language might feel anxious about some morphological details of the cited examples; for that reason I have attempted to provide as much detail as possible within the limits of space and interruption. The next two chapters deal exclusively with major syntactic processes. Almost all data cited in these chapters are quoted from narrated texts in order to avoid unnaturally "translated" sentences.

Chapters dealing with morphology follow those dealing with syntax. The reader who has some familiarity with Athapaskan will not find it necessary to read the chapters in the order presented. Every effort is made to provide cross-references, especially between chapters dealing with syntax and morphology.

Major phonological processes are discussed in the last two chapters. Many minor phonetic rules which do not interact significantly with the major rules are not included.

This book is not a complete grammar of Sarcee, although I have attempted to make this description as comprehensive as possible. It probably covers more syntax than any other Athapaskan grammar that has been published, and yet what has been described is far from comprehensive. Despite efforts made in chapter 5, the derivational morphology of the verb requires a great deal more work. Of the phonological analysis, the description of tones, especially the so-called middle tone, is less than satisfactory. It is hoped, however, that the strengths of this study will outweigh its weaknesses, and the book as a whole will present the essential features of Sarcee grammar that might be of interest to linguists in general and Athapaskanists in particular.

0.40. ORTHOGRAPHY.

There are several slightly different versions of orthographies used for scholarly presentations of Sarcee data. All are based on Edward Sapir's original system, which is essentially "phonemic" in the traditional sense.[2] I shall present below the symbols that I use and explain how they compare with others that have appeared in print. A brief discussion on the phonetic properties that the symbols represent, where not self-explanatory, follows.

(1) a. Segmentals:

(b)	d	dl	dz	dj	g	(gw)	
	t	tl	ts	tc	k	(kw)	
	t'	tɬ'	ts'	tc'	k'	(kw')	ʔ
		ɬ	s	c	x		h
m	n	l	z	j	γ		
				y		w	
				i		u	
				a (= *a*)		o	

b. Length: Short (V), Long (V°).

c. Tones: H(V́), M(V̄), L(V̀).

0.41. Consonants.

The consonant symbols above are identical to those used by Sapir (1925) and Li (1930) except for the diacritical mark for glottalization, e.g., *ts'* for *t's*, etc. In a more recent work, Hoijer and Joël (1963) used the same consonant symbols except for alveopalatal obstruents for which they replaced *c* and *j* by *š* and *ž* respectively. I adopted these modified symbols in a number of writings (e.g., Cook 1971a, 1971b, 1972). In this book, however, I return to Sapir's original symbols for no other reason than typographic convenience where a (roman) and *a* (italic) represent the same vowel.

The consonants and vowels presented in (1a) may very well be considered an inventory of phonemes in a taxonomic sense. Nevertheless, no rigorous justification of the phonemic status is intended, since the primary purpose of the symbols presented above is to introduce an orthography by which Sarcee examples are cited, eliminating a great deal of insignificant (viz., redundant) phonetic details while maintaining salient features. I shall not elaborate any further here, since the chapters dealing with phonology, particularly chapters 10 and 11, examine phonological representations from a generative point of view. For the reader who is not familiar with Sarcee, however, the inventory presented above requires some comment.

The consonant inventory presented in (1) differs from that of Sapir (1925), which was adopted by others (e.g., Li 1930, Hoijer and Joël 1963) in the treatment of the labialized velars. These consonants were considered by Sapir and others explicitly or implicitly as phonetic variations of nonlabialized velar obstruents. For example, *gw* and *kw* are derivable from underlying *gu* and *ku* respectively in sequences like *gu-a* (gwa) and *ku-a* (kwa). One could, therefore, conclude that *gw* and *kw* are not phonemic. The status of *kw'* is not as easy to determine as that of the other two labialized

velar stops. Neither is there any evidence that *kw'* derives from a sequence like *k'u,* nor that *k'* always becomes labialized next to a back vowel. The occurrence of *kw'* is certainly very rare, but it does occur in forms like *dúkw'ōdí* [dúkw'ą̀dí] 'old' (see the next subsection for the use of *o* for *ą*) and *nīkw'ǫ̀tc'íyāā* 'the one who is short, a personal name (Shorty).' *kw'* before *u* is certainly interpretable as *k',* but it cannot be so interpreted before other vowels because of forms like *ììk'ōyí* and *màdískw'àk'.* It should also be noted that neither *g* nor *k* becomes labialized before *o,* e.g., *nágòn* (not *nágwòn*) 'it is drying,' *míyììskòh* 'I'll dip it up.' Therefore, I conclude that *kw'* is certainly phonemic, although I question the phonemic status of *gw* and *kw.*

w and γ^w often alternate before *u,* in which case, they are written as γ (as they are interpretable as allophones of γ); where the labialization is not predictable (e.g., *kòwá* 'camp'), they are written as *w.* Historically there are other sources for *w.*

The bilabial stop *b* does not really belong to the system. Sapir recorded only one stem morpheme *bu'* 'to buzz,' and I have recorded one noun *bu'*s 'cat.' The fact that the verb stem is an onomatopoeia and the noun is probably a loan word from Blackfoot or English is further suggestive.

l and *ɬ* are classified here as lateral fricatives rather than liquids. This classification is justifiable on the basis of the phonological rules to which all the fricatives are subject; that is, all the fricatives, including *l* and *ɬ,* are related in terms of the syllable alternation rule (see chapter 10) and the devoicing rule (see 1.13). The diachronic development of *l* and *ɬ* is interesting in that the *l* has changed on the phonetic level to a vowel and *ɬ* to *s* in certain environments (see Cook 1971b).

From a generative point of view, the underlying (also historical) *x* merges with the *h* in final position on the phonetic level. The nature of *h* which does not derive from underlying *x* is not clear, since the nonfinal occurrence of *h* is very rare and there is no clear example in which *h* contrasts with *x.* Sapir and Li use ' for final "breathing" and *h* elsewhere, while Hoijer and Joël and I use *h* everywhere.

It has been a common practice for Amerindian linguists in general and Athapaskan linguists in particular to use such symbols as *b, d, dz,* etc. for plain (unaspirated, unvoiced, unglottalized) stops and affricates.

On the other hand, the aspirated (unvoiced, unglottalized) stops and affricates are represented by *t, k, tɬ,* and others and the glottalized (unvoiced, unaspirated) ones by *t', k', tc',* and so forth. Therefore, those who are not familiar with this practice should not misunderstand the phonetic properties these symbols represent.

The glottal stop in initial position is redundant and not marked in the

presentation of data. The glottal stop in final position is also redundant but is treated differently for historical interest. As pointed out earlier, John Whitney, who worked with Sapir, retained the final glottal stop, but not always consistently, as indicated by Sapir's notes. For example, 'beaver' is written as *tsò,* not as *tsò*ʔ as expected; on the other hand, 'tongue' is written as *-tsùʔ,* not as *-tsù.* Furthermore, the same word is written with or without final glottal stop, e.g., *ts'ìʔ* ~ *ts'ì* 'towards.'

As Krauss (1978) documented, the final glottal stop (or glottalized consonant) has given rise to the high tone in some languages (e.g., Chipewyan, Slavey, Chilcotin) and to low tone in others (e.g., Sarcee, Dogrib, Navajo). The total disappearance of the final glottal stop in contemporary Sarcee and the retention of it in Sapir's data make the presentation of the data in this book look somewhat inconsistent. But I have decided against editing the two sources of data and have presented them as they are recorded.

It is worthy of note that Sapir's data also has a different kind of final glottal stop, which derives from an underlying *d.* The tone of the final syllable that is closed by this derived glottal stop is not always low. I have not yet encountered any speaker who has this feature (d ⟶ ʔ) or any trace of it. As far as Sapir's data are concerned, the final glottal stop is not redundant on the autonomous phonemic level because of this rule.

Another variation allowed in this orthography is the alternation of γ and *y.* On the phonetic surface, *y* may derive from underlying *y* or γ before *i* (and before *a* in innovative speech). Goddard's texts indicate that γ was intact before *i* at the turn of the century, but it has turned to *y* in contemporary Sarcee. The cited examples with the alternation of the two segments often suggest the nature of examples and phonological rules involved.

From an historical point of view, the stem-initial consonant development is more or less straightforward. As Leer (1979) observed, there are two major mergers indicated by the following correspondences: the Sarcee dz-series corresponds to the PA *dz-series and *dž-series, and the Sarcee dž-series corresponds to the PA *dž^w-series and *ĝ-series. The development of the PA *ĝ-series in the latter merger, however, is somewhat inconsistent among the fricatives. For example, *γ has merged with *y* on the autonomous phonemic level, but the *y* which derives from *γ (not from *y) behaves phonologically (i.e., morphophonemically) like *ž* and *y* (see Cook 1978b). As Krauss (1976) pointed out, the historical development of the PA fricatives are not as congruent as the affricates. Spirantization, nasalization, and devoicing, among others, have complicated the surface phonology of stem-final consonants, some details of which are discussed in chapter 10.

0.42. Vowels.

Sapir recognized four distinctive vowel qualities which are represented by *i, a, u,* and *ą*. Because of the typographic inconvenience of the last vowel, which Sapir described as "velarized, dark-timbered," the vowel symbols have been modified by Hoijer and Joël and me in different ways (in different writings), as shown by the following:

Sapir and Li	i	a	u	ą
Hoijer and Joël and Cook (1972)	i	ɑ	u	o
Cook (1971)	i	a	u	o

Again for reasons of typographic convenience, I use *i, a, u,* and *o* in this book. Among the four vowels, the two high vowels have a wide range of phonetic variation. Since *u* is very often realized by either [u] or [o], one should not confuse the phonetic [o] with the phonemic *o*.

As for allophonic variation, low vowels hardly have any variations: *o* is [ą], low back partly rounded, and *a* is [ɑ], low front unrounded.[3]

i varies between i and *e,* and interesting phenomena associated with this variation are discussed in terms of lowering in 1.11. The allophonic variation between [o] and [u] for *u* was observed by Sapir and recognized by Li and Hoijer and Joël, but it has never been satisfactorily explained. As I dealt with this problem earlier (see Cook 1971d), [o] and [u] appeared not to be in complementary distribution, and yet they did not appear to contrast. Neither did they seem to occur in free variation; for example, *tú* 'water' and *nú* 'island' are always pronounced as [tú] and [nú] and never as [tó] and [nó], whereas *-sú* 'grandmother' and *sùh* 'star' are always pronounced as [-só'] and [sòh] but never as [-sú'] and [sùh]. I now realize that they are indeed in complementary distribution in that *u* is [ú] in absolute final position and [o] or [ʊ] elsewhere, where 'grandmother' is phonemically *-súw* instead of *-sú*. This suggests that homorganic glides, both *w* and *y* in final position, contrast with zero (cf. 'he is crying' is *ītsīy* instead of *ītsī*).

Historically, the full and lax contrast that existed in the PA vowel system has disappeared in Sarcee owing to the three mergers: *i and *ə merged to *i*, *a and *ɑ to *o* ([ą]), and *u and*ʊ to *u*. And the full vowel *e has become *ą*. This historical development of Sarcee vowels from PA is illustrated by Leer's (1979) brief discussion of PA phonemic inventory.

There is a very interesting exception to this development of PA vowels in Sarcee, which raises a theoretical question. It concerns *a > *o,* which is regular except following *y*. For example, 'sg. to walk (imp)' is *-yáh* instead of *-yóh,* as in *dìyáh* 'he's going to walk.' The expected vowel *o,* however, occurs in dìcóh (di-s-yóh) 'I'm going to walk.' The palatalization rule (s + y ⟶ c) is reasonably well motivated as discussed elsewhere (see 11.12, also Cook 1978c). Disregarding the underlying representation of the stem-initial consonant, it is apparent that *a became *o,* as expected, but *a* after *y*. This diachronic development is reasonable, considering the tongue positions of *a* and *y,* but the synchronic representation of the stem vowel raises an interesting question. Since the underlying stem-initial consonant is *y,* it is reasonable to represent the vowel in question with *a* as in *-yáh*. This vowel presumably becomes *o* after *c* (i.e., after the application of the palatalization rule). This certainly appears arbitrary because the change is not phonetically motivated. The vowel in question, on the other hand, may be represented by *o* (which will make the diachronic rule simpler) only to be changed to *a* following y (after the application of the palatalization rule). The incongruency of the diachronic development and the synchronic representation is due to the fact that the development of *a to *a* and *o* is conditioned by the surface consonants (*y* and *c*) rather than the underlying *y*. Consequently, the statement of allomorphy on the basis of a single underlying representation (either *-yáh* or *yóh*) is hardly natural from a phonetic point of view. If the synchronic alternation is not phonetically motivated, it may be better to treat it as a morphologically conditioned alternation, i.e., *-jóh*[4] occurs following *s-* (1sg subj.) and *-yáh* elsewhere. This solution nullifies the palatalization mentioned above because the surface *c* derives from underlying *j* via devoicing rather than palatalization. Furthermore, this morphological solution does not require rule-ordering, which is necessary for the phonological solution (see 11.12).

0.43. Tone.

Sapir's recognition of three level tones has never been challenged, nor has there been a thorough argument to establish their phonemic status. While I have marked three level tones, I have always questioned the status of the mid tone. It is more like a lowered high or raised low in many instances. Sapir's notes show many instances in which tones are marked inconsistently, indicating two or three different tones for the same word, (e.g., *ìsíná ~ ìsīnā ~ ìsìnà* (an enclitic with no definable meaning), *dìkūy ~ dīkúy* 'it's lukewarm,' *ìsts'ōyá ~ ìsts'òyā* 'my wife,' *ts'ōōtsá ~ ts'òòtsà* 'old woman,' and some of his other transcriptions turned out to be clearly incorrect upon double checking. The least understood is tonomorphophonemics. For example, 'father' has high tone in such forms as *í-tó* 'my father' and *mí-tó* 'his father,' but the same noun stem has low tone in *dī-tò* 'own father.' Also frequently observed are alternate tones on the prefixes which do not have lexical (underlying) tone, for example, *dì-tò ~ dī-tò* and *mí-tó ~ mī-tó*.

Tone fluctuates more in larger contexts (e.g., narrated texts) than in isolated words in citation. This is apparently due to the rhythmic pattern or intonation, of which little is known. For example, *-γáh* 'to kill one (imp)' is consistently high in cited forms, such as *zīsγáh* 'I'll kill him,' *nīzīsγáh* 'I'll kill you,' *sīzīsγáh* 'he'll kill me,' but the same verb stem has mid tone in such words as *zísγāh* (zi-ni-s-γáh) 'you kill him' and *zìsγāh* 'I'll kill him' in a larger context cited in (49) of chapter 2. It is reasonable to assume that the underlying stem tone is high as shown in cited forms. This high tone is lowered in the textual forms. In citing examples, however, I have not altered tones but marked them as they appear in the original data (either Sapir's or mine). In short, there is a great deal of fluctuation between mid and high, and mid and low, especially in natural context. The apparent inconsistencies in the cited examples are due to this fluctuation.

Clearly, Sarcee has a low-marked tone system, although it is no longer transparent due to various phonological rules that have eliminated the glottal stop or glottal feature in final position that caused the low-marking (e.g., *ʔ ⟶ Ø, *tɬ' ⟶ l, *nʔ ⟶ h). Leer (1979) suggested that the mid tone of Sarcee has arisen from a reduced vowel in a syllable checked by a glottal feature. In other words, the high and mid distinction is due to the vowel quality, since the tone of a full vowel in the same environment is expected to be low. There is some support for this hypothesis; for example, *-t'āh* (instead of *-t'àh* as in Li's list) has mid tone on the vowel which corresponds to *α (according to Leer).

The orthography includes only three level tone markers, since all contour tones on the phonetic level are derivable from a combination of two different underlying level tones, for example, V́V̀ ⟶ V̂˙. Two identical underlying level tones on the geminate vowels, on the other hand, yield an overlong vowel, for example, V́V́ ⟶ V́˙ᵛ. These and other features of tone are discussed elsewhere in some detail (Cook 1971a).

Forms without a lexical tone are sometimes cited without marking tone as it may vary according to phonological contexts. In underlying representations, only lexical and paradigmatic tones (Cook 1971a) are marked. Pronominal and other inflectional prefixes carry no underlying tone and their surface (syntagmatic) tones are assigned by rule at the phonetic level.

Every effort is made to double check tones, but the data presented in this book inevitably contain apparent inconsistencies, some of which are due to acceptable variations while others might be errors.

0.44. Long Vowels.

Hoijer and Joël (1963) postulated three phonemic lengths following Sapir's phonetic distinctions. I have discussed the status of the long and

overlong vowels elsewhere (1971a) and concluded that the so-called overlong vowel (V˙ᵛ) is phonemically representable as geminate vowels and the long vowel is a single vowel occurring before a voiced continuant. There is only one pair of words in the phonetic data that might suggest a phonemic contrast between V and V˙, that is, [dą̇ní] 'food' vs. [dą́'ní] 'gun.' But these are phonemically interpreted as *dóní* and *dóóní* respectively, since there is no evidence that [V˙] contrasts with [Vᵛ]. There is, however, some evidence that the redundant vowel length before a voiced continuant has become phonemic in innovative speech (see 1.13). This change and the disappearance of the overlong vowel (which is simply a long vowel) in innovative speech suggest a change from V vs. VV to V vs. V˙ (see 1.12). In order to accommodate this kind of new data, the orthography provides for a long vowel symbol.

0.45. Hyphen and Comma.

This orthography also contains a hyphen and comma. Their uses, though not consistent, are intended to facilitate analyses of the cited examples by marking off morphemes and clauses. As a rule of thumb, nominal enclitics and verbal suffixes and enclitics are marked off by a hyphen, so that stems can be recognized.

0.50. ABBREVIATIONS AND CONVENTIONS.

This book contains a number of abbreviations and conventions that are well established in linguistic literature, for example, NP (noun phrase), sg. (singular), 1p. (first person). In addition to these, there are many abbreviations which are not so well established but quite self-explanatory in a given context, for example, dl (dual), and perf(ective), asp(ect), cont(inuative). No explanatory comments are required for these two categories of abbreviations that are used in this book.

Another category of abbreviations used in this book include those which are not in common use and those which may represent two or more terms. For example, N stands for "noun," "nominalizer," or "relativizer;" D stands for "determiner," "d-Classifier," and "the iterative verb stem." These abbreviations hardly cause ambiguity as the contexts in which they are used are different.

0.51. List of Abbreviations.

The abbreviations and symbols used in this book are as follows:

A = imperfective stem
B = perfective stem
C = progressive stem; classifier
D = iterative stem; determiner; d-Classifier
DD = deictic-demonstrative
DL = delimiter
H = high tone
Ł = s-Classifier
M = modal enclitic; modal adverb; mid tone
N = noun; nominalizer; relativizer; complementizer
O = object
P = postposition
PP = postposition phrase
Q = question; quantifier
T = tense
# = disjunct boundary
≠ = stem boundary

0.52. Conventions.

Sarcee data are introduced with free translations with or without inter-linear translations. Efforts are made to include as much detailed morphemic information as possible within the limited space. Inter-linear (or morpheme-to-morpheme) translations, however, do not necessarily reflect the order, nor are they given in uniform style. Different styles are used to emphasize the important feature at a given point of discussion. For example, a morpheme boundary is normally specified by a hyphen, but if the boundary is a focus of discussion, it is specified by a proper one, that is # or ≠. To cite another example, the verb prefix is normally marked for its relative position by a lowered Arabic numeral, but if the relative position is irrelevant or the position cannot be determined, no position is specified.

Rules are formalized wherever possible, and the abbreviations and conventions used in the formal rules are those widely used in contemporary linguistic literature.

Cited examples are often provided with underlying morphemic structures to the right of an arrow. Less formal morphemic analyses are also given within a pair of parentheses. These latter analyses are intended to specify morphemic identities, excluding unnecessary details such as zero morphemes and prefix positions that may not be relevant to the point at hand.

1

Speech Variations and Diachronic Processes

1.00. CONSERVATIVE VS. INNOVATIVE SPEECH FORMS.

This book's data come from three different sources: Sapir's field work of 1922, recorded in seven volumes and accompanying grammar and lexical files; my own field notes of the last several years; and a limited amount of mostly syntactic data from Goddard's texts (1915). The material from the last source has been modified wherever possible, adding tones and correcting errors. It is apparent that the data recorded by Sapir are homogeneous, that is, they represent one speech form, because John Whitney was the only assistant for his work, and not because there were no noticeable speech differences among the speakers at that time.

It may be convenient to discuss the differences in conservative and innovative speech. The speech form represented by one of the oldest speakers (the late Mrs. Daisy Otter), who may be considered to represent the conservative form, is almost identical to that of John Whitney, the only source of Sapir's data. It is, however, difficult and unrealistic to draw a clearcut line between the conservative and the innovative forms of speech by two distinct age groups. While it can be said that feature X is a characteristic of the conservative speech form, it cannot be said that the feature is found exclusively in the speech of those seventy or older. To cite a striking example, the Athapaskan *t* classifier has changed in Sarcee to *s* (if it is not deleted). In

Sapir's data, there are a few instances in which *t* is found where *s* is expected. In my own records, *t* is found occasionally where *s* is normally expected, but the *t* occurs not in the speech of the oldest speaker that I worked with but in the speech of a much younger person who is in her sixties.

1.10. PHONOLOGICAL VARIATIONS.

Differences among the speech forms to be discussed here concern mainly phonological features, since very little difference exists (as far as I know) in lexical and grammatical features. It is somewhat surprising that almost no lexical borrowing has materialized despite the fact that Sarcee has been in contact with English for a long time.

Having little to say on grammatical variations, I shall now comment on salient phonological features that distinguish the conservative from the innovative speech form. The first to be discussed concerns processes affecting vocalic features which I shall call lowering and shortening.

1.11. Lowering.

By lowering I mean the realization of *i* by [e] or [ɛ] instead of [ɪ] or [i]. It may be said that these phones are free variants, and no clear statement can be made of their distribution except that [e] or [ɛ] is more likely to be found in final position, and others elsewhere. Let us assume that these alternations represent a phonological change in progress, which may be expressed by the following rule:

Rule (1):

i ⟶ e/__ (see below for conditions)

Two general statements may be made for the conditions under which this change has been observed: (i) the younger the speaker is, the more widely the rule applies; (ii) the nearer to final position the syllable is, the more likely it is to apply. Consider the following examples:

(1) ístsíy ⟶
- (a) ístsí·
- (b) ístséy
- (c) éstséy

In (1) are given three different pronunciations of the form *ístsíy* 'I am crying' by three different individuals. In (a) as recorded by Sapir[1] no vowel is

lowered, in (b) the final *i* is lowered, as spoken by a person in her sixties, and in (c) both vowels are lowered, as spoken by a daughter of the above speaker. Furthermore, it is interesting to note some evidence of lowering also in Sapir's notes:

(2)
- a. nás?éh 'I am looking at it.'
- b. ìnās?íh 'He is looking at something.'

Notice the alternation of *i* and *e* in the last syllable (stem). Sapir added the note "last syllable seems different" to 2(b). This indicates that *i* and *e* alternated more or less freely in the speech of Sapir's assistant. What is also interesting is that *e* is found in the verb stem *-íh* 'look' only among half a dozen homophonous stems (e.g., *-?íh* 'steal,' *-?íh* 'groan'). It seems, therefore, reasonable to assume that the lowering of *i*, which started at the turn of this century, has spread in two dimensions—lexically from one or a small number of verbs affected by the process to all verbs and other form classes, and within a given word from the rightmost syllable to the leftmost syllable.

The generality of the lowering process observed above may be formally stated in terms of the variable rule as proposed by Labov (1969) wherein such factors as age group and relative syllable position may be specified. Although the nature of the data available now is hardly adequate for a quantitative analysis whereby the variables may be determined, a figure like the following is illustrative:

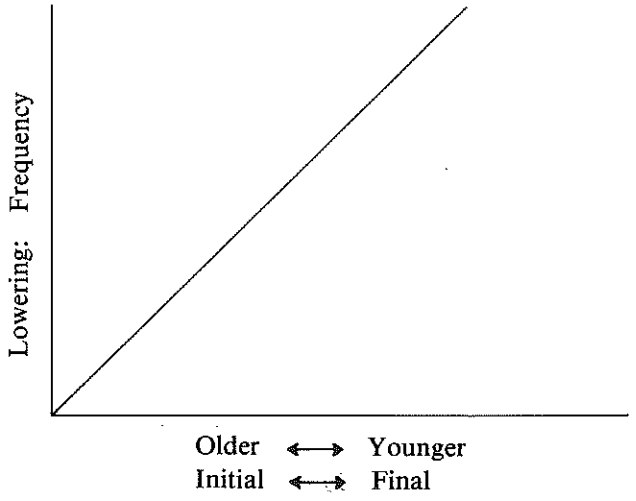


Figure 1. Correlation between age or syllable position and lowering of *i*.

It may be noted that the lowering is not a "phonemic" change in either a taxonomic or a generative sense, since *i* does not contrast with *e* in a system where there are only two front vowels, *i* or *e* opposing *a*. For this reason, I have regulated the transcription by using *i* for *e* when citing examples from different sources, except when the phonetic detail is relevant.

Another type of lowering which may be termed "phonemic" is the lowering of *i* to *a*. For reasons unknown to me, vowel *i* in some prefix morphemes alternates with *a*. This obviously happens in the innovative speech form since no such alternation is noted in the older data. The following are typical examples:

(3)	Conservative	Innovative	
a.	íyìnīh	áyìnīh	'He is jealous.'
b.	íyìnìsnīh	áyìnìsnīh	'I am jealous.'
c.	síyìnīh	sáyìnīh	'He is jealous of me.'

One puzzling question, however, is whether the same (apparently) alternation shown in (4) is purely phonological:

(4)		
a.	mànīsníh	'I will push it.'
b.	ɣàsníh	'He will push it.'
c.	míyìsnìh	'I am pushing it.'
d.	yíyìsnìh	'He is pushing it.'

1.12. Shortening.

Sapir recognized three phonetically distinct vowel lengths: overlong ($V^{\cdot v}$), long ($V^{\cdot}$), and short (V). On the basis of the observation that an overlong vowel carries a level tone only ($\acute{V}^{\cdot v}$, $\bar{V}^{\cdot v}$, $\grave{V}^{\cdot v}$), while a long vowel carries a contour tone only ($\hat{V}^{\cdot}$, $\check{V}^{\cdot}$, $\tilde{V}^{\cdot}$, etc.) unless it occurs before a voiced segment, I generate the overlong vowel from underlying VV where the geminate vowels carry the same level tone and the long vowel from underlying VV where the geminate vowels carry different level tones (see Cook 1971a). The long vowel with a level tone, on the other hand, is a case of redundant lengthening before a voiced segment. Further to be mentioned here is that the vowel gemination occurs across a morpheme boundary,[2] which means that length is not really distinctive. It has been noted, however, in the innovative form of speech that the underlying sequence of VV with a level tone on each is realized by a long vowel with a level tone rather than an overlong vowel. In other words, Rule (2a) is being changed to Rule (2b):

Rule (2)

a. $VV \longrightarrow V^{\cdot v}$

b. $VV \longrightarrow V^{\cdot}$

1.13. Devoicing.

Perhaps the most significant change since the 1920's is the devoicing of final sibilants *z* and *j*. In the alternation between the light syllable and the heavy syllable, which mark the imperfective aspect and the perfective aspect respectively (see Cook 1972), stem-final voiceless fricatives alternate with corresponding voiced fricatives as shown below.

(5)	Imperfective	Perfective	
a.	-lús	-lú·z	'sew'
b.	-ʔás	-ʔà·z	'kick'
c.	-ɣūc	-ɣù·j	'whistle'
d.	-ʔòɬ	-ʔò·l	'chew'

As mentioned in the preceding section, the vowel length in the perfective form is due to the voicing of the following consonant. This means that the inflection is accountable by a voicing rule. What has happened in the innovative speech form is that the final sibilant (but not *l*) of the perfective form is devoiced:

(6)	Imperfective	Perfective	
a.	-lús	-lú·s	'sew'
b.	-ʔás	-ʔà·s	'kick'
c.	-ɣūc	-ɣù·c	'whistle'
d.	-ʔòɬ	-ʔò·l	'chew'

This process may be expressed by a rule such as the following:

Rule (3)

$$C \begin{bmatrix} +\text{cont} \\ -\text{lat} \\ +\text{voic} \end{bmatrix} \longrightarrow [\text{-voic}]/\_\_\_\#\#$$

Two interesting points should be mentioned here. First, one of the consequences of this change is the complication of the inflectional process; in (5)

L-final verbs need not be distinguished from other verbs, while in (6) a subclassification of the verbs is necessary in order to state the inflection correctly. That is, the inflection must be accounted for by a voicing rule for L-final verbs and a lengthening rule for sibilant-final verbs. As pointed out elsewhere (Cook 1978a), the apparently simple sound change generated far-reaching ramifications where the grammar is conceived as a system of ordered rules.

Second, the two diachronic processes expressed by Rule (2b) and Rule (3) are responsible for the emergence of functional status of long vowels, that is, the interaction of the two diachronic rules has changed the functional status of long vowels in the innovative speech.

The devoicing rule has affected not only the perfective stem-final sibilants, but also the iterative stem-final *j* (see next section). In fact, this process has affected all word-final sibilants in the innovative speech forms. Also, the devoicing process which has affected the verb-final sibilants is not a recent innovation. In Sapir's data, the following noun paradigms are found:

		I (free)	II (possessed)	
(7)	a.	ʔáx	-ʔáx-àʔ	'snowshoe'
	b.	tìs	-tìs-àʔ	'cane'
	c.	mìɬ	-mìɬ-àʔ	'snare'
(8)	a.	zà·z	-zàz-àʔ	'child'
	b.	zí·z	-zíz-àʔ	'vein'
	c.	γí·z	-γíz-àʔ	'pus'
(9)	a.	más	-máz-àʔ	'knife'
	b.	t'áx	-t'áγ-àʔ	'feather'
	c.	tɬ'úɬ	-tɬ'úl-àʔ	'rope'

In (7) stem-final consonants are voiceless both in free and possessed forms, in (8) they are voiced in both forms, but in (9) the free and possessed are distinguished by voicing. It is reasonable to account for the alternating stem-final consonants by a devoicing rule which applies to underlying stem-final voiced consonants or by a voicing rule which applies to underlying voiceless consonants. In any case, one has to distinguish the nouns in (9) to which the voicing/devoicing rule applies from those in (7–8) to which the rule does not apply, although both classes of nouns may have the same underlying stem-final consonants (the vowel length in (8) is predictable as discussed above).

An interesting point is that the final consonants of the free forms in (8) are voiceless in the innovative speech:

(10)	a.	zà·s	-zàz-à[3]	'child'
	b.	zí·s	-zíz-à	'vein'
	c.	yí·s	-yíz-à	'pus'[4]

The change in nouns exactly parallels the change in verbs. As in the case of verbs, the vowel length is no longer a redundant feature.

1.14. Spirantization (Deaffrication).

Another change in stem-finals involves the iterative aspect form. In the conservative speech form, the iterative form ends in *c, j,* or *tc,* depending on the underlying stem-final of the corresponding imperfective form (see chapter 10). Like perfective stem-finals, the iterative stem-final *j* is devoiced to *c* in the innovative speech form:

		I (conservative)	II (innovative)	
(11)	a.	-jī·j	-jī·c	'think'
	b.	-jī·j	-jī·c	'race'

The devoicing of final *j* of the iterative form does not mean a complete merger of two iterative finals, *j* and *c,* in the sense that the original *c*-final iterative forms have a short vowel, (e.g., *-gīc* 'bite,' *-dūc* 'crawl') while the original *j*-final forms have a long vowel even after the devoicing affected the final sibilant (see above). Incidentally, the stem initial *j* in (11) is an underlying *z,* which assimilates to the final *j* (sibilant assimilation).

The iterative final *tc,* on the other hand, presents a problem and raises a question as to the validity of the rule stating the alternation of iterative final *c, j,* and *tc* in the conservative speech form. If the final *tc* is preceded by *ɬ,* the final *ɬtc* remains unchanged as shown by the examples in (12):

		I (conservative)	II (innovative)	
(12)	a.	tágídìɬtc	tágídìɬtc	'They are dancing.'
	b.	nínácnīɬtc	nínácnīɬtc	'I keep throwing them.'

The problem, however, is the deaffrication (or spirantization) of the final *tc* which is not preceded by *ɬ* or any other consonant. As shown in (13), the final affricate is deaffricated in the innovative speech form, but apparently

this process has exceptions as indicated by the forms in (14):

		I (conservative)	II (innovative)	
(13)	a.	názīcγātc	názīcwāc[5]	'I keep killing it.'
	b.	nátàγānáàtùtc	nátàwānáàtùc	'It's broken again and again.'
(14)	a.	xānáàgùtc		'I'll dig again.'
	b.	-	náàsgūtc	'I keep stabbing someone.'
	c.	-	átɬànádīckòtc	'I keep patching it up.'
	d.	-	xánáàsgūtc	'I keep digging.'

It is unfortunate that Sapir's data do not provide all iterative forms that can be compared with the corresponding innovative forms. When the underlying imperfective stem-finals (according to which iterative stem-finals can be determined as *c, j,* or *tc* in the conservative speech form) of the verb paradigms of (13) and (14) are compared, an interesting fact emerges. That is, the imperfective stem-final of (14) is *d* and that of (13) is not *d*. This means the conservative forms of (14) should have final *j,* according to the rule which determines the iterative stem-finals as outlined in Li (1930) and revised in Cook (1972), and this *j* must have changed to *c* according to the devoicing rule discussed in the preceding section. Unfortunately, this cannot be attested in the absence of conservative forms; however, forms in (14) clearly indicate that the rule as formulated in Cook (1972) needs to be amended. What Li and subsequently I overlooked is the following: although most verb paradigms whose underlying imperfective forms end in *d*[6] have their iterative forms ending in *j,* there are a few exceptions which do not obey this rule. Perhaps *d* is not the underlying final consonant for the imperfective stem of those verbs in (14). Whatever the case may be, not all instances of iterative final *tc* (not preceded by *ɬ*) in the conservative speech have been subject to the deaffrication process. In sum, the following shows correspondences between the conservative (I) and innovative (II) forms of the iterative stem:

Shapes of iterative forms

	a.	b.	c.	d.	e.
I	CVc	CVɬtc	CV˙j	CVtc	(?)
II	CVc	CVɬtc	CV˙c	CVc	CVtc

In short, the iterative-final has become generalized because of the two rules: the devoicing rule which has eliminated *j* and the deaffrication rule which has reduced the forms that end in *tc.*

1.15. Glide Formation.

One of the most interesting phonological changes of Sarcee involves the palatalization and labialization of γ to *y* and *w*. I have discussed this process elsewhere (Cook 1978c) in a broader context in relation to other phonological rules. I shall comment here on the cases in which the process resulted in the restructuring of some segments.

The behaviour of γ may be most conveniently discussed as three different segments: as a stem-initial consonant, as a stem-final consonant, and as a prefix-initial consonant (there is no prefix-final consonant; all prefixes are in the form of CV or V). In Sapir's data, stem-initial γ has four positional variants: *y* before *i;* γ^w, x^{w7} or *w* before *u;* and γ before other vowels, namely *a* or *o*.

(15)	a. zīsγ*á*	'I will kill him.'
	b. zìsīs*yí*	'I killed him.'
	c. ìsx^{w}ùɬ	'I will swell up.'
	d. īīγ^w*ù*ɬ	'You will swell up.'
	e. ìì*wù*ɬ	'He will swell up.'

Notice that in (15e) γ is realized by *w,* a case of complete labialization of γ. In the most innovative form of speech *w* occurs not only replacing γ^w, but also γ, hence only *y* (before *i*) and *w* (elsewhere) alternate:

(16)	a. zīswá	'I will kill him.'
	b. zìsīsyí	'I killed him.'
	c. ìswùɬ	'I will swell up.'
	d. īīwùɬ	'You will swell up.'
	e. ìì wùɬ	'He will swell up.'

The change of γ to *w* before *u* does not require any further explanation, but the same change before *a* is not something usually expected. Since a different change has taken place for the prefix-initial γ under an apparently similar environment, I shall return to this problem shortly. At this moment, another point to be mentioned is that the morphophonemic relationship of the stem-initial consonants in 'to kill' is quite apparent in (15) but the same does not hold for those alternating consonants in (16). Whether γ should still be considered to be the stem-initial or whether either *w* or *y* should be chosen as the underlying initial is an interesting question.

With respect to stem-final γ, I have elsewhere (Cook 1972) presented an abstract analysis in which underlying final γ is realized as *w* after *u* and *y*

elsewhere. This analysis is justified mainly on the basis of the so-called light and heavy syllable alternation process which accounts for the inflection between the imperfective and the perfective. The following three verb stems illustrate the process:

(17)	Imperfective	Perfective	
a.	-táx [táh]	-tìγ [tìy]	'run'
b.	-t'úx [t'úh]	-t'ùγ [t'ùw]	'shoot'
c.	-ʔóx [ʔa̤h]	-ʔòγ [ʔà̤y]	'fool'

Underlyingly, the final of the imperfective is *x* and the final of the perfective is γ where the light syllable closed by *x* and the heavy syllable closed by γ mark the imperfective and the perfective respectively (along with tonal and/or vocalic alternation where applicable). Phonetically, *x* is represented by "breathing," and γ by a homorganic glide or *y* elsewhere. This analysis is further supported by examples such as the following (from Sapir) in which γ is realized by *y* finally after *i* and by γ nonfinally after *i:*

(18)			
a.	sīsts'íy	'It's bitter.'	
b.	sīsts'íγáʔà	'It *is* bitter.'	Cf. sīsts'íyáʔà

Compare the two forms in (18b). The medial γ is replaced by *y* in the second form which has recently been elicited. This means that the stem-final γ, too, has changed to either *y* or *w* everywhere in the speech of some innovative speakers.

The glide formation observed in this analysis reveals two points of general interest. In order to make the points clearer I shall formulate two glide formation rules: one applying to initial γ and another to final γ:

Rule (4)

$$\text{a. } \gamma \longrightarrow \left\{ \begin{array}{l} y/\_\_\_i \\ w/\_\_\_\left\{ \begin{array}{c} u \\ a \\ o \end{array} \right\} \end{array} \right\} \qquad \text{b. } \gamma \longrightarrow \left\{ \begin{array}{l} w/u\_\_\_ \\ y/\left\{ \begin{array}{c} i \\ a \\ o \end{array} \right\} \_\_\_ \end{array} \right\}$$

First, γ becomes *y* either before (i.e. in stem-initial position) or after (i.e. stem-final position) *i;* similarly, it becomes *w* either before or after *u*. On the other hand, *w* is favoured *before a* and *o* (nonhigh vowels), while *y* is favoured *after a* and *o*. It is curious why this is so. Secondly, part of the glide formation applies to γ both before and after the conditioning segment, hence the rule contains a subrule which can be stated essentially by Bach's

(1968) "neighborhood convention" or Langacker's (1969) mirror image rule.[8]

γ constitutes the initial consonant of a number of prefixes, for example, γ*i-* (4p obj.), γ*i-* (perfective), γ*a* (postposition), etc. The following forms exemplify how the γ of γ*i-*(perfective) assimilates to the following *i* in one instance and to the preceding *u* in another:

(19)		
a.	túyìsì˙z	'I have sipped tea.'
b.	túwìzì˙z	'He has sipped tea.'

In other words, the glide formation rule operates in either direction, and it is not clear what determines the direction of the process, although examples such as the following suggest that boundary phenomena play significant roles in determining the directionality:

(20)		
a.	tú + γi ≠ dùwà ⟶ túyídùwà	'Water has gone.'
b.	tú + γi ≠ dùwà ⟶ túwídùwà	

(21)		
a.	i + ni ≠ γà ⟶ īníγà	'You spear him.'
b.	si ≠ γà ⟶ sìγà	'He will spear me.'

In (20a) γ assimilates to the following *i* within the same morpheme, while in (20b) γ assimilates to the preceding *u* across a morpheme boundary (+). This morpheme boundary does not seem to block the assimilatory process. Examples in (21) show that γ does not assimilate to *i* across the stem boundary (≠),[9] although this restriction seems to be lifted in the innovative speech form as shown by the following examples in which γ and *y* alternate as stem-initials:

(22)			
a.	nāgídìyíγà	[nāgédèyéyà]	'They (three or more) stood.'
b.	nāgídìyíyà	[nāgédèyéyà]	

In short, the evidence presented above clearly suggests that the glide formation process applies, in principle, in either direction, although details require further specification.

Returning now to prefix initial γ, the reason that γ is still considered as the underlying initial for γ*i-* (perfective) and some other homophonous prefixes is that *y* and *w* are not the only alternants surfacing on the phonetic level. γ also appears when followed by *a,* as illustrated by examples from the conservative speech.

(23) a. i + γi + Ø + zìz ⟶ ìyízì'z 'He sipped (something).'
b. i + γi + as + zìz ⟶ ìyásì'z 'Ye sipped (something).'

The rule which deletes *i* before *a* is a general process. In the above data, it is clear that this deletion rule must apply before the palatalization of γ to generate *yi* of (23a) and γ of (23b) from underlying *γi*.

In other words, that alternation of prefix-initial *y* and γ can be accounted by two ordered rules. Now consider the same prefix in the following examples from the innovative speech form, in which the initial is represented by *y* before *a* as well as before *i:*

(24) a. *yí*tàh 'You slept.'
b. *yà*stàh 'Ye slept.'

(25) a. xā*yì*s?ó 'I am sticking out.'
b. xàdā*yà*s?ó 'You are all sticking out.'

In the speech from which the above data are selected, the prefix-initial in question is always *y*. Therefore, from a strictly synchronic point of view this is a case of restructuring, since the morpheme in question should be represented underlyingly by *yi* rather than *γi*. From a diachronic point of view, this is a case of the reordering of two rules, one which deletes *i* and one which turns γ into *y*. That is, the glide formation applies first, yielding *yi* from *γi;* then the deletion rule applies, yielding *y* from *yi* before *a*.

As discussed above with examples (15) and (16), the stem-initial γ has changed to *w* not only before *u,* but also before *a*. The same process is observed prefix-initially as well. Compare the forms in two columns:

(26)	I (Conservative)	II (Innovative)	
a.	zīsγ*á*	zīs*wá*	'I will kill him.'
b.	sáγ*à*nílò	sá*wà*nílò	'Give them to me.'
c.	táγ*á*gàd	tá*wá*gàd	'He rides into the water.'

In the latter two forms, the post-position is γ*a* in (I) and *wa* in (II). If these forms are compared with (24b) and (25b), the notion of rule ordering makes good sense. Without this notion, it would be difficult to explain why γ has changed to *y* in one case and to *w* in another in the *phonetically* identical environment. In (24) and (25), underlying *i* (which deletes before *a*) has caused the change of γ to *y,* whereas in (26) there is no underlying *i*. Therefore, the change of γ to *w* in (26) is an unconditioned change in its usual sense.

To recapitulate some salient points in this section: (i) the glide formation is in principle both progressive and regressive assimilation, (ii) this rule must have applied originally within a morpheme (e.g., γi ⟶ yi) or across a morpheme boundary within the prefix complex (e.g., tú + γi ⟶ túwí), then later across a stem boundary (e.g., yi ≠ yà ⟶ yíyà), and (iii) the glide formation as a synchronic rule as well as diachronic process can be reasonably well described by rule ordering.

1.20. VOWEL RE-ALIGNMENT.

As mentioned in a preceding subsection, *i* is lowered more frequently in certain positions than others. The problem that this tendency has created for the phonemic interpretation of [i] and its lowered quality [e] is that these two phones are not exactly in complementary distribution. Yet there is not a single minimal pair to show the contrast between the two phones. From a diachronic point of view, the high front vowel is certainly in the process of being split into two phonemes.

A parallel process is being developed for the high back vowel. But the alternation between [u] and its lowered quality is predictable: [u] in absolute final position and [o] elsewhere (see 0.42). This complementary distribution is maintained only if the homorganic glides are phonemic. The split of *u* to *u* and *o* will follow as soon as the final glides are lost.

An examination of Goddard's texts suggests that the lowering of the high front vowel was much more restricted and less frequent at the turn of the century. It is somewhat more frequent in Sapir's data, and the tendency is widespread in contemporary Sarcee, as the figure in the preceding section illustrates. The occurrence of [o] in Goddard's texts is extremely infrequent, and it occurs as a free variant of *u,* for example, [kùwá/kòwá] 'camp,' [dú/dó] 'no', and [gù/gò] 'in the manner of.'

Another interesting tendency noted in both Sapir's data and mine is the alternation between two low vowels, *a* and *o,* for example, *dàà ~ dòò* 'here' and *ináá ~ inóó* 'my mother.'

From a structuralist's point of view, these diachronic tendencies suggest a realignment of vowels from a four-vowel system to a five-vowel system. In other words, the high vowels, both front and back, are each being split into two while the two low vowels are being merged into one, as illustrated by the following:

Conservative			Innovative
i u			i u
a o		>	e o
			a

This realignment of vowels, however, has not been completed. If it had been, one would expect at least one or two minimal pairs that show contrast between [i] and [e] on the one hand and [u] and [o] on the other.

Compared with what has happened in other Athapaskan languages, particularly Slavey, Chipewyan, and Dogrib, this diachronic process is not surprising after all. In Slavey and Chipewyan, *u* and *o* contrast, but they still alternate very frequently. In Dogrib, there is only one high back vowel phoneme where [u] and [o] are more or less in free variation (see Howren 1979).

2

Syntactic Categories and Basic Sentence Structure

A well-known characteristic of Athapaskan is the phonological and morphological complexity of the verb prefix structure. Aside from the verb, the morphological structure of Sarcee is fairly simple. There are three major morphological categories: nouns which inflect for person and number in a paradigm of possessive construction; verbs which inflect for person, number, and aspect in several subparadigms, depending on the nature of the verb; and the "particles" of essentially nominal characteristic. Another well-known category is the so-called postpositions. From the syntactic point of view, a distinction between noun phrases (NP) and the postpositional phrase (PP) is well motivated. From the morphological point of view, however, postpositions (P) are a subcategory of nouns, as demonstrated by the processes of inflection and derivation.

While the verb has a complex prefix structure, suffixes to both nouns and verbs are few. What appear as suffixes in most cases can be better treated as "enclitics" from semantic, morphological and syntactic points of view. Enclitics are functionally classifiable into four categories: (i) modals which constitute part of the predicate structure, (ii) conjunctions of a mostly subordinate type, (iii) complementizers, and (iv) others, including "determiner."

Nouns and verbs constitute major categories morphologically as well as syntactically in that they both inflect and represent the two major syntactic

constructions, NP and VP. The syntactic functions of particles within the two major constructions, along with the postpostional phrase, are analyzed in some detail in this chapter.

While there is no separate set of formatives that mark functional types of sentences such as questions and commands, there is a set of modal enclitics that should be dealt with in conjunction with the basic sentence patterns in this chapter. Enclitics of conjunctive functions and complementizers are discussed in connection with conjoining and complementation in subsequent chapters.

Examples are cited without detailed morpheme breaks since such morphological analyses are given in separate chapters. Enclitics are separated by a hyphen in order to help identify the stems of the major categories, which is often essential in understanding the data. Morphemes separated by a hyphen (otherwise) receive special attention in conjunction with a given point in the discussion.

2.10. CONSTITUENTS OF BASIC SENTENCE PATTERNS

A simple sentence may be represented on the surface by a single verb as in (1). In each of the verbs, the last CV(C) represents the stem whose canonical form may also be CVCV in a few stems. The prefixes include subject (e.g., *ni-* 'you sg.,' *s-* 'I'), and object (e.g., *mi-* 'it,' *γi-* 'the other,' *i-* 'something'), among other categories. While these subject and object prefixes are among the inflectional (obligatory) categories of the verb, independent subject or object NP may be deleted under certain conditions leaving VP alone as in (1).

(1) a. díγàl 'It is round.'
b. níídàɬ 'You (sg) eat it (berries).'
c. ìsdó 'I am drinking (something).'
d. mís?ás 'I am kicking it.'
e. ìcùɬ 'He'll blow it.'

While the main verb is the last constituent in a typical Sarcee sentence, a PP or relative clause may sometimes be moved to the right of the main verb. The only other elements that have fixed position after the main verb are *nádlí(n)* 'again'[1] and *tcú* 'also, likewise.'

The sentences cited in (2) have a predicate structure in which the verb is

preceded by an object NP, PP, or both. None of the sentences has an independent subject NP.

(2) a. xāní nás?òɬ
buffalo I-butcher 'I'll butcher the buffalo.'
b. dìsts'òyá ìsní-là
own-wife he-told 'He told his wife.'
c. dìsts'òyá γā níló-là
own-wife to he-gave-them 'He gave them to his wife.'
d. ítòò nīnīγá-?ī zìsāàyí
my-father bear-the we-killed 'Father, we killed *the* bear.'

Where the underlying subject and object NP's are not deleted, they occur in that order preceding the verb, as exemplified by the sentences in (3). All the examples are taken out of texts, and the "optional" constituents of the basic sentence patterns are put in parentheses.

(3) a. ts'ìdátsá-?ī dītò áàsní-là
girl-the own-father she-told
'The girl told her father.'
b. ts'ìká-?ī (ák'áà) ìcxùɬ-là
woman-the (still) she-scrapes
'The young woman was (still) scraping.'
c. síní ìyīná (gūts'ígàná) zìsγáh
I those-ones (ahead-ones) I-kill
I'll kill those (who are ahead).'
d. (dìní) k'òt'íní-?ī mītcàdīkòdí ìγá-là[2]
(this) man-the beaver he-kill
'The man killed a beaver.'

The NP in the above two sets of examples is either subject or object of the sentences, whereas NP in the following is complement:

(4) a. álíní gwāádjá-lā
meat it-became-so 'It has become meat.'
xàkídjí àcdjà?
chief I-became 'I have become chief.'

b. xàkídjí	ìstɬīh	
chief	I-am	'I am chief.'
tsúùt'ínà	ìstɬīh	
Sarcee	I-am	'I am Sarcee.'

As demonstrated in this set of sentences, the complement NP is never deleted. It is by no means accidental, considering that the subjects and objects are morphologically marked in the verb prefix, whereas there is no verb prefix coreferential to the complement NP. As well, the verbs in (4) are two of a few verbs into which a sentence may be embedded, as discussed in chapter 4. Those verbs also include a copula (*-t'à*). In this regard, it is difficult to determine the function of the NP in the following sentences:

(5) a. síní ánìst'ā	'It's me.'
b. tú át'ā	'It's water.'
cf. tú gūlīh	'There is water.'

There are interesting semantic and syntactic features associated with the above verb (a copula), some of which are discussed elsewhere (see Cook 1978c), and more are dealt with in connection with minor sentence patterns in the following paragraph.

A few minor sentence patterns apparently do not have a verb within the predicate structure. The predicate of those sentences in (6) is represented by a postpositional phrase. This is the only PP which may be so used. One characteristic of the predicate structure of the sentences in (7) is the use of enclitics. A modal enclitic (see the following section) is affixed to what is obviously not a predicate verb in each of the three sentences in (7).

(6) a. nímázà	sígò	
your-knife	me-to	
'I have your knife (your knife is in my possession).'		
b. àkíyí	zòz	nígò
two	child	you-to
'You have two children.'		
c. sìlítc'á	táyk'íká	mígò
my-dog	three	it-to
'My dog has three pups.'		

(7) a. zòsk'ó-ʔà	'It is winter.'
b. síní-ìsī	'Perhaps it's me.'

c. djīdjá-ʔī ák'áà-là	'The berries were still there.'
berry-the still-is	
cf. zòsk'ó sílà	'It *was* winter.'
xàkídjí yílà	'He used to be a chief.'

The modal enclitics (including those in above examples) are found more frequently affixed to the predicate verb (see 2.11). Most of the enclitics appear to be related, etymologically at least, to a verb. For example, *-ʔà* of (7a) is a phonologically reduced form of the copula verb stem *-t'à* of (5), and *-là* of (7c) is obviously related to verb *sílà* and *yílà*, which manifest verb morphology with the *si*-perfective and the *yi*-perfective prefixes.

In any case, the first three sentences in (7) are comparable to those in (6) in that there is no true verb in the predicate construction. Assuming there is a zero copula, these sentences are comparable to English sentences beginning with 'there *be*' or 'it *be*.' Furthermore, it is not just a noun that may occur before *-ʔà* (7a); a "relativized" form of a sentence may also be predicated by *-ʔà*. Considering the emphatic nature of the modal enclitic (see 2.11), as well as the relativization process, this sentence pattern compares very well with the English cleft sentence (see chapter 4).

There are a few words which may be used as an utterance without having the morphology of a major category or the structure of a sentence. These include *áà* 'yes,' *tcá* 'no,' and *tcúwà* 'wait,' among others.

Concerning its major sentence patterns and the distribution of its two major syntactic categories (nouns and verbs), Sarcee is a verb-final language where the verb alone may represent a sentence or where it may be preceded by the subject NP, the object (or complement) NP, or both, in that order, depending on the nature of the verb; that is, SOV in the familiar typological notation. In terms of the phrase structure notation, the typical (major) Sarcee sentence pattern is: NP-NP-VP where the first NP is subject and the second NP is either object or complement. This leaves several other constituents of basically nominal type that occur within the predicate structure, for example, PP's or particles. These are assumed to be "optional" constituents within VP where VP means a predicate verb with a verb in it; that is, it excludes verbless predicates of the minor sentence patterns. The internal structure of this VP is discussed in 2.20. On the other hand, NP means any nominal construction regardless of function, for example, subject NP or NP within a PP, whose internal structure is analyzed in 2.30.

2.11. Modal Enclitics.

The predicate may have no modal enclitic, which is the case in "colour-

less" matter-of-fact statements or commands. It is, however, more often the case that the predicate constituent ends in one, sometimes two, or even three modal enclitics. As shown in (7), a modal enclitic apparently functions as a main verb in the absence of a true verb in VP. This function is expected where the enclitic derives from a verb or is still analyzable in terms of a higher verb. This is the case for *-ʔà* and *-áʔà,* which derive from *át'à,* a copula verb (see [5]). Another modal enclitic, which is apparently related to a verb stem ('to be' or 'to do'), is *-là* (see [7]). *-ìsà/-ìsì* is the encliticized form of an adverbial *ásàà,* which normally occurs preceding the main verb (see 2.20). *-ìgù(ɬ)* is related to conjunction *ìgùɬí* 'nonetheless.' Both of these are obviously related to the versatile enclitic *-gù.* Although the semantic characteristics and grammatical functions of each of these enclitics are not easy to determine, "modal" is the most appropriate and self-explanatory term to characterize these formatives in a distinct category, as shown in the following subsections.

2.11.1. Assertive -ʔà, -áʔà, and *-át'à.* The kind of data given below suggest that *-ʔà* is a phonologically reduced form of verb stem *-t'à:*

(8)	a. ìtóó át'à	'It's my father.'
	b. ìsúw-ʔà	'It's my grandmother.'
	b. sìdá-ʔà	'It's my sister.'

Due to the lack of verb morphology, *-ʔà* in these examples is considered an enclitic, but its function is identical to that of the verb, *át'à.* Consider now *-át'à* and *-áʔà* which occur as verbal enclitics (i.e., affixed to a main verb) in the following data:

(9)	a. gīdīyáh-át'à	'They *will* go.'
	cf. gīdīyáh	'They'll go.'
	b. sāɣà náʔón-ì-t'à[3]	'You *did* give it to me.'
	c. dìstsáh-áʔà	'I *shall* cry.'
	cf. ìstsīy	'I am crying.'

The two forms of the modal enclitics (*-át'à, -áʔà*) alternate without any appreciable difference in meaning. Interestingly enough, *-ʔà* and *-áʔà* are mutually exclusive in that the former occurs in nominal predicates while the latter occurs in verbal predicates.

It is difficult indeed to pin down the meaning of the modal enclitic, and it should not be construed as having any direct bearing upon the tense as the glosses might suggest. It puts emphasis on the speaker's willingness, promise, or intention (in the case of future action) as indicated by (9a,c), or reassurance and reaffirmation (in the case of present and past actions) as indicated by the following examples:

(10)	a. yīsgáɬ-áʔà	'I *have been* packing it on my back.'
	b. yìsʔìn-áʔà	'I *didn't* care about it.'
	c. ìsnó-áʔà	'He *is* eating it.'
	d. ìdjón-áʔà	'He *will* get old.'
	e. cīīdjón-áʔà	'He *is* old.'

Three alternative syntactic analyses are possible for this assertive modal enclitic. First, it is treated simply as a formative affixed to a main verb as outlined above. The basic phonological form of the modal enclitic is *-át'à* which may be weakened to *-áʔà.* Second, *-át'à* is analyzed into two forms, the relativizer (complementizer) *-í* and *-t'à.* The relativizer *-í* assimilates to a vowel next to it, either before or after, with or without an intervening glide; hence, *-áʔà* and*-át'à* as well as *ít'à,* but never *-íʔà.* Since the relativizer nominalizes the verb, the surface structure in (10) is identical to (8b-c); that is, the predicate is represented by NP plus *-t'à/-ʔà.* The partial derivation of (10a) illustrates this process:

yīsgáɬ	í	t'à	input
[VP	$N]_{NP}$	M	
yīsgáɬ	í	ʔà	weakening
yīsgáɬ	á	ʔà	assimilation
yīsgáɬáʔà			output

Third, an alternative only slightly different from the second postulates a higher verb (e.g., *ʔát'à,* see [7a]) from which the surface enclitic derives. A sentence which has the matrix verb is an assertive statement which translates as 'it *be* (is, was, will be) the case that. . . .' This last alternative is discussed in some detail elsewhere (Cook 1978c). In any case, the assertive nature of the modal is reasonably clear.

2.11.2. Inferential: -là, -lāà. Of all the modals, *-là* occurs most frequently, especially in narratives; it also occurs frequently in questions along with *-ì* (interrogative). There is some evidence that *-là* is related to a verb (see *yílà* 'there was'). Only a few examples are recorded for *-lāà.* The semantic contrast between the two forms is indicated by the following examples:

(11) a. gwādíní-lā
'You are imitating (in speech).'
b. gwādíní-lāà
'You should have imitated. (Why didn't you?)'
gwādísní-lāà
'I should have imitated.'

(12) a. ɣātcìgùdìsáɬ-lā
'He trimmed it.'
b. ɣātcìgùdìsáɬ-lāà
'He should have trimmed it.'

That *-là* is most frequently used in narratives of past events and that it never occurs in commands or in a predicate whose verb is in the imperfect aspect suggest that it indicates the speaker's inference on the events which have already taken place. *-lāà* is probably a combination of two modals, *-là* and *-à*. A few sentences which end in *-à* have been noted with a "diminutive" sense, but not enough data are available to further examine the status of *-à* as an independent morpheme.

2.11.3. Interrogative: -ì/-à, -ìsì, -ìsà. Only the first of these three modal enclitics is a true interrogative which is used along with a question word or *-là* in a question sentence that demands an answer. The other two do not mark the sentence as an interrogative per se, but they indicate the speaker's doubt or question. Due to this semantic overlap, these are grouped here together.

The simple yes-no question is marked by *-ì* (⟶ *à, ù*) and *-là*. If *ásàà* (a modal adverbial; see the following section) occurs before the verb, *-là* does not occur and *-ì* alone functions as a modal enclitic.

(13) a.	kúyìyá-à-là	'Did he come in?'
	nàgúdìlá-à-là	'Are you sick?'
	gímíní?ádz-ì-là	'Did you kick him?'
	sìsúw-ú-là	'Is it sour?'
b.	ásàà sīdlúw-à	'Did you feel cold?' (*ásàà* 'I wonder if')
	ásàà táákòn-à	'Does it taste bitter?'
	cf. táákòn-ì-là	" " " "
	ásàà yìláh-à	'Can he do it?'
	ásàà nàmò?-à	'Can he swim?'

So far, *ásàà* is the only adverbial which is recorded in an interrogative sentence. Apparently this modal adverbial is mutually exclusive not only with *-ìsà* but also with *-là,* which is not accidental at all when it is encliticized in the form of *-ìsà.*

-là is also mutually exclusive with question words, but in WH-questions *-ì* may be replaced by other enclitics:

(14) a.	dìt'áá	ká	dú	tìnínáh-ì
	what	for	not	you-move-Q
	'Why are you not moving?'			
	dàdínàh-á		t'àà	āsīts'ìsínì-ì
	what-you-say		for	thus-they-treat-me-Q
	'What did you say for them to treat me like this?'			
b.	xàt'àá	nīdjà-gù		
	what	you-did-M		
	'What (intention) did you do it for?'			

As mentioned above, *-ìsà* is an encliticized form of *ásàà* (modal adverbial). Another enclitic which is similar in form and meaning to this is *-ìsì.* Although the subtle semantic difference is not easy to determine, the distinction between *-ìsì* and *-ìsà* may be made in terms of 'more probable (real)' vs. 'less probable (hypothetical),' as illustrated by the two sets of examples below.

(15) a.	dìní-ìsì	'This person it must be.'
	dìyí-ìsì	'This thing it must be.'
	cīīdjón-ī-īsì	'Perhaps he is old = That he is old it must be.'
	k'īsì dícà-àsì	'Perhaps I will go somewhere.'
b.	nāyímò?-ìsà	'I might swim.'
	tògúnìyíkáɬ-ìsà	'You might break it.'
	dìyí-ìsà	'Maybe this is it.'

2.11.4. Intentive: -gù, -ìgùɬ. -gù is the most widely used enclitic, and as a modal it indicates the speaker's intention and advice. The negative counterpart of this enclitic is *-ìgùɬ* (prohibitive) whose final *ɬ* alternates with *h.*

(16) a. nádì tłàts'īɣánáɬ-*gù*
'Without you we *will* (intend to) go.'
tłìk'í xàyíyá-là īcxùɬ-*gù*
'One (of them) went out *in order to* scrape.'

b. díyínì-*ìgùɬ* 'Don't say it.'
nàsīyísxàɬ-*ìgùh* 'Don't throw me off.'
díyíʔóc-*ìgùɬ* 'Don't sneeze.'

While the subject of the sentence marked by *-gù* may be in any person, the subject marked by the prohibitive mode is always in the second person, that is, *-ìgùɬ* marks the negative command. In the second example of (16a), *-gù* is a modal as well as a complementizer (see chapter 4).

As shown in the preceding subsection, two modals *-ì* amd *-là* are frequently used in the yes-no question. Another most common combination of two modals are *-gù* and *-là*. A combination of three modals appears to be extremely rare, and one such example in a nominal predicate has been noted:

(17) a. dímòyā zó nànínāc-*gù-là*
'Only along the edge you *should* move.'
ìtɬ'áàts'ì-ìdàʔ ícxùɬ-*gù-là*
'Tomorrow you *should* scrape.'
b. sīts'ìzìsγín-í-*gù-là-àsà*
me-someone-kill-N-M-M-M
'Someone probably *would have killed* me (by then).'

It is, however, impossible to determine further possibilities of combinations and their internal order because of limited data.

2.12. ìsíná and djú.

These two formatives are grouped here together because of their peculiar syntactic and semantic characteristics, which are most elusive. Both of them occur within either of the two major syntactic constituents, namely NP and VP. *ìsíná* is almost unlimited in distribution, since it may be appended to any form class or inserted anywhere in the sentence. Semantically, it is almost empty in that there is no definable lexical meaning; whatever meaning it may have appears almost totally dependent upon the context. These syntactic and semantic characteristics may invoke a comparison with such expressions as "well" and "you know" in colloquial English. Following examples illustrate these points.

(18) a. dìní-*ìsíná* míts'òyā tc'ìctcù-là
this his-wife they-captured-her
'This wife of his was captured.'

b. ùwā-t'íγí-*īsíná* ìsdádjàg-á γá-*àsíná* nìstí-là
and-then he-is-tired-N for he-slept
'And then because he was tired he went to bed.'
c. dìní ts'ōōtsā-*àsíná* γāγát'á-là
this old-lady for-him-she-pitied
'This old lady pitied him.'
d. dáá *ìsíná* tɬík'ákūdìcγá-là
here in-circle-they-camped
'Here they camped in a circle.'
e. xágìγīγīs-à-*ìsīnā*
they-run-while
'while they were running'

The formative occurs after a demonstrative in (a), after a conjunction in (b), after a NP in (c), after a locative noun in (d), and after a clause in (e). It occurs frequently after the first word as in (a), (b), and (d), and it may also occur twice in the same sentence (in fact in the same clause) as in (b). It is indeed difficult to determine what governs the syntactic positions and the meaning.

Nevertheless, there are two qualifications which are worthy of mention here. First of all, *ìsíná* is recorded only in narrative texts that Sapir collected. This word was encountered neither in Goddard's texts nor in my notes. This suggests that its use is quite idiosyncratic and perhaps limited to narrative style. Second, it seems to function as a discourse marker introducing a new scene or character in a story. Out of twenty-six of Sapir's texts, twenty begin with a word or NP that is followed by *ìsíná*. More often than not the first word after which *ìsíná* occurs is either *dìní* (introducing a main character) or *dáá* (introducing a scene). The textual evidence suggests that *ùwā(t'íγí)* introduces a new sentence, while *ìsíná* introduces a new discourse.

djú, which is glossed as 'too' or 'either' (in negative predicates), occurs at the end of either NP or VP (as in [19a-c]), or at both ends (as in [19d]). In NP, *djú* is mutually exclusive with *zó* (delimiter), and just like *zó, djú* may also occur after a postposition, as in (19e). This evidence, among others, suggests that there is little structural difference between nouns and postpositions.

(19) a. īst'ání-ʔī *djú* īsdūdí sīló-là
bow-arrow-the too elsewhere there-were
'There were bows and arrows in another place.'

b. dìní míníyá-ʔɪ *djú* mīká dīyìstɬ'á-lā
this his-brother-the too him-after he-climbed
'His elder brother too climbed after him.'

c. gútɬádì gwátɬìgīsdál *djú* gīnī
many-times I-fight too they-said
'"I fought many times too," they said.'

d. nìtɬání īstɬáká *djú* ìcìctcùd *djú,* gīnī
many horses too I-captured too they-said
'"I captured many horses too," they said.'

e. āāt'íyíná tō *djú* ìtc'ídùwàh-lā
those among either he-was-not
'He was not among those people either.'

Given the fact that *djú* occurs both in NP and VP, the question is how to postulate the underlying syntactic position for *djú*. It makes little sense to have *djú* underlying both in NP and VP, although it appears in both, as in (d) above. In Chipewyan, *tcú* (an apparent cognate of *djú*) functions as a conjunction appended to both constituents (e.g., *bǫ-tcú nǫ-tcú* 'his mother and your mother'). If this is a parallel development of the same formative, one of the two occurrences of *djú* is redundant and does not originate from the deep structure, leaving the question whether it is a constituent of NP or VP. Although it seems easier to treat *tcú* as a constituent of VP, no further discussion will be presented. Meanwhile, it is excluded along with *ìsíná* from the discussion of the two major constituent structures, namely NP and VP in the following sections.

2.20. VERB PHRASE (VP).

As shown in the preceding sections, the verb is normally the last constituent within VP. This strict order of constituents in VP may have been responsible for the development of the so-called disjunct prefix categories in verb morphology, especially the most frequently occurring incorporated postpositional constructions. Since, other than the verb itself, the postpositional construction is the most important constituent of VP, some of its details are discussed in a separate subsection (2.21).

Another subclass of words that frequently make up constituents that modify the verb in VP include subcategories of nouns such as numerals, locative nouns, and temporal nouns. Since the constituent structure of NP is discussed in the subsequent section, no details of these nouns are dis-

cussed in this section. Among the nominal particles, particularly interesting are locative diectic categories that occur as a constituent of VP. There are several sets of locative and pronominal diectic categories, most of which are based on the five diectic elements:

dàà	'here' (near first person and second person)
nāà	'there' (near the second person)
nūɣū	'yonder' (away from both first and second person)
dōò	'yonder out of sight' (of both first and second person)
íyí/áá-	'there' (mentioned or implied before)

The following are three sets of locative-temporal diectic categories:

(20) a. dàà 'here'
nāàdí 'there'
nūɣūdí 'yonder'
dōòdí 'yonder out of sight'
īyīdí 'right there'

b. dààt'íyí 'right here, right now'
nūɣūt'íyí 'right there'
dōòdít'íyí 'right over there'
īyīt'íyí 'right there'

c. dāàʔí 'right now'
dāàgù 'just now (past)'
dáàt'íyígù 'right this time (past)'
dáásìʔ 'hither, in this direction'
áát'íyígù 'at that time/place'
íyít'íyígù 'from that time'

These locative nominals frequently occur in VP. Kari (1981b) reports on a riverine locative system in Koyukon. No comparable system is found in Sarcee. The pronominal diectic categories that represent NP are dealt with in 2.34.

A third class of words that modify the verb include simple and compound nominal particles which cover a wide range of semantic categories (see 2.24) including locative-temporal (e.g., *nìkà* 'downward,' *k'ódàdà* 'later,' *k'òhágù* 'a while ago'), modal (*ásàà* 'I wonder if...,' *dú* 'not'), manner (*gùdjá* 'carefully, well,' *dámō* 'in a circle'), degree (*tīɣá* 'strongly,' *tɬàsìʔ* 'completely'), and others. Some particles are also found affixed to nouns and verbs, displaying not only the versatility of their agglutinative-analytic mor-

phology, but also obscuring the distinction between nouns and particles. There is indeed good reason to view particles as nominals and to believe that there are only two classes of words in Sarcee, namely nouns and verbs.

2.21. Postpositional Phrase (PP).

The simplest surface form of this construction consists of a postposition preceded by a nominal prefix. As Li (1946) suggested in his description of Chipewyan, the postposition is really a sub-class of nouns, "local nouns" in Li's terminology. There is ample evidence for the view that postpositions (and other particles of adverbial function) are nouns of mostly locative-directional function. The most striking similarity between a noun and a postposition is demonstrated by the process of pronoun copy (after Langacker 1977). Consider the postpositional construction in the following sentences:

(21) a. *γìh*⁴ átɬ̄īdīsdlòn
him-with he-fought
'*With him* he had a fight.'

b. ts'ìdāátsà-ʔī *γā-γā* ītsīy-là
girl-the it-for she-cried
'The girl was crying for it.'

c. *gū-ts'ì*ʔ xānáyíyá-là
there-to
'He went out (to) there again.'

d. *sī-ts'ì*ʔ dìná yìyáɬ-ìdàʔ
me-to man he-is-walking-if
'If a man comes *to me.*'

e. dìná *mī-tó* ìtsīy-í ìts'ìzìsts'í-là
person them-among he-is-crying-N one-heard
'They heard a person who was crying *among them.*'

The pronominal prefixes affixed to postpositions *ìh* 'with,' *γá* 'for,' *ts'ì*ʔ 'to' and *tó* 'among' in these examples are *γi-* (also *γa-* with vowel assimilation) 4sg, *gu-* 'locative,' *si-* 1sg, and *mi-* 3sg/pl. These and other pronominal prefixes which occur in similar constructions are considered "copied" pronouns which are coreferential with the underlying NP (which happens to be deleted in the above examples). The anaphoric nature of the copied pronoun is revealed in the following sentences where a coreferential NP remains undeleted within PP, that is, the NP and Pro(noun) are coreferential in PP which has the structure NP Pro-P.

(22) a. tɬ'à gū-k'àʔ nàyìnístí-là
bed there-on
'He placed her on the bed.'

b. kòwá gù-γā nīnágīnít'óz-là
camp there-at
'They (two) arrived home.'

c. ī-tó á-γá ánāàsdísí
my-father him-for
'I'll invite you for my father.'

The copied pronoun *gu-* in (a) and (b) is coreferential with *tɬ'à* 'bed' and *kòwá* 'camp,' and *á-* (←— *mi-*) is coreferential with *ī-tó* 'my father.' This type of postpositional construction is structurally identical to the possessed NP as exemplified below.

(23) a. ìk'ōōtsíí mì-yá 'Bull-Head's son'
Bull-Head his-son

b. òk'òyí mì-zólá 'bull's neckwear'
bull his-neckwear

c. mí-níγá mī-ts'òyá 'his elder brother's wife'
his-brother his-wife

In short, NP and PP are structurally identical in that Pro-N and Pro-P are morphologically identical and that the copied pronoun is coreferential to an underlying NP, which may be deleted under the same condition (e.g., where recoverable) in both types of constructions.

While recognizing these superficial structural similarities between NP and PP, it should also be recognized that there are significant differences between the two types of constructions. Structurally, PP presupposes NP, but not vice versa. This means that a postposition can never occur alone without a preceding NP, which may be represented by a copied pronoun with or without a coreferential NP as shown in (21–22). Otherwise, it may be a single noun such as those presented in the next subsection. Functionally, only NP functions as subject or direct object or complement, whereas PP covers the rest of the functional relationships.

2.21.1. PP Without Copied Pronoun. The examples of PP cited above show that the postposition is always bound to (i.e., prefixed by) a pronominal prefix (i.e., a copied pronoun) rather than to a noun. Nevertheless, a small class of nouns occur before a postposition without a copied pronoun affixed to the postposition, that is, the rule of pronoun copy does not apply. These include *tú* 'water,' *kù* 'fire,' *ìtcí* 'stick,' *tsá* 'stone,' *ts'ìdí* 'blanket,'

and possibly more, including some kinship terms:

(24) a. *tú* *ts'ì?* dìyá-lā
water to she-went
'She went to water (to get some).'
tú *γà* tcīgīyīdìɬ-lā
water for they-come
'They came in for water (to drink).'

b. ìyí gòhlá tónà? *kù ts'ì?* tòódìstì
that spruce bark fire to she-put-it-on-a-stick
'She put that spruce bark on a stick facing the fire.'

c. nūwú dìt'óní *ītcí k'à?* tōgùlá-á ts'ídíγáàtł'ò?ī
that eagle tree on he-is-brooding-N we'll-run-up
'Let's run up to the eagle which is brooding on the tree.'

d. tłò ìyí *ītcí tō* nīnīγá dīzóní āt'íná?à
son that tree among bear he-is-mad-N he-stays
mìts'ídìnā nàγácō?-īgùɬ
him-to-near ye-go-not
'Son, an angry bear is staying among those trees;
don't go near it.'

e. *ts'ìdí k'à?* sīlāà
blanket on they were
'which are placed on the blanket (pattern name)'

f. tsà k'ā-ts'ì? mīk'àástłá
stone on-to it-on-I-make
'I sharpen it.'

The last example is particularly interesting for two reasons. First, the sentence has two postpositional constructions, one independent phrase and another incorporated into the verb. Second, the independent PP contains two postpositions instead of one (see chapter 9 for further discussion).

2.21.2. Inherently Possessed Noun in PP. In the preceding subsection are given examples of PP whose structure has the form noun plus postposition (N − P). The problem is that it is not easy to define the class of nouns that may occur directly before a postposition without a copied pronoun prefixed to the postposition. Differently put, when is the rule of pronoun copy blocked? There is at least one well-defined subclass of nouns which blocks the rule in PP. These include body-part terms which are "inherently" possessed:

(25) a. *sínì* *ts'ì?* nídò
my-face to you-sit
'Sit down facing me (towards me).'

b. gútł'ìs *mīná* *k'à?* yìsnìɬ
dirt his-eye to I-threw
'I threw dirt into his eye.'

c. *yítsí* *k'àsì?* nàyítcíj-là
her-nose along he-painted
'He painted down along her nose.'

Another subclass of nouns which are inherently possessed is kinship terms. These nouns behave in the same way as the above subclass with respect to the pronoun copy rule.

(26) a. *díkòlà* *ts'ì?* kúyíyá-là
own-husband to she-went-in-again
'To her husband she went in again.'

b. *cìnádjìná* *ts'ì?* ā-kó nádāàt'òz
my-relative to them-for we'll go
'Let's go (to look) for my relatives.'

Notice that the second example above has two PP's: the first is preceded by an NP but not by a copied pronoun and the second by a copied pronoun but not by an NP. Another interesting aspect of the second PP is that the copied pronoun is *ā-* (see footnote 5), which is coreferential with *cìnádjìná* (*sì-nádjìná*) 'my relatives.' Apparently the pronoun copy rule is blocked for the first PP, but not for the second.

The nouns that block the pronoun copy rule are not limited to inherently possessed nouns or a small class of nouns whose membership may be closed. The following data suggest that the conditions under which the rule is blocked are extremely complicated.

(27) a. díítc'íí ts'ì? 'fourth time'
cf. gū-ts'ì? 'towards there'

b. nísts'í ts'ì? 'with the wind'
nísts'í nòsì 'against the wind'
cf. nísts'ìy 'it's windy'

c. nìtł'úl ts'ì? 'lengthwise, according to length'
cf. nìtł'úl 'it's long'

d. ìsdáádjàg-à γá (ìsdáádjàg-ì γá) 'for he was tired'

In (a), the postposition *ts'ì?* is preceded by a numeral, in (b-c), they are preceded by a verb (sentence), and in (d) postposition *γá* is preceded by a nominalized form of a verb. Notice that *ts'ì?*, a postposition, occurs directly following a verb instead of a nominal. This is one of a few postpositions which apparently functions as a conjunction as discussed elsewhere (see 3.30). A similar phenomenon is observed in other Northern Athapaskan languages.

2.21.3. Summary. Nouns and postpositions are most similar to each other at the morphological level. At the syntactic level, the two constituent types are different not only in their constituent structures, but also in their syntactic function. The function of PP is predominantly locative-directional, as illustrated by examples presented in the preceding subsections, all of which have a very simple NP as the co-constituent of the postposition. The structure of NP within PP is not always as simple as those examples might have suggested. The following sentence has one of the most complex PP's ever recorded in texts.

(28) dáàdí dzázī zìsīsγín-ī ílínà?[5] dāγàdìsīstɬà-á *ts'ì?*
yonder elk I-killed-N meat I-hung-N to
dāsdàɬ
ye-go
'Go over there where I hung up the meat of an elk that I had killed.'

This is an imperative sentence whose main verb is the last word *dāsdàɬ* 'ye go!,' which is preceded by two locative-directional phrases, *dáàdí* 'over there' and a PP with *ts'ì?*, 'to.' The NP in this PP is represented by a compound of two NP's, each of which has an embedded sentence (i.e., a relative clause). Figure 1 illustrates the phrase structure of the PP.[6] The underlying subject NP *síní* in both embedded sentences is deleted, and the relativizer *-í* is assimilated to *-á* in the second. The head nouns of the compound NP are *dzázī* 'elk' and *ílínà?* 'meat.' It should be noted that the pronoun copy is blocked in this complex PP and postposition *ts'ì?* is preceded by a nominal as expected rather than a verb (see [27]).

Not all postpositions are locative directional. Others play various other functions commonly found in "case" languages. This excludes the three most important functions, "the subject of," "the direct object of," and "the complement of." These three functions are properties of NP. Another

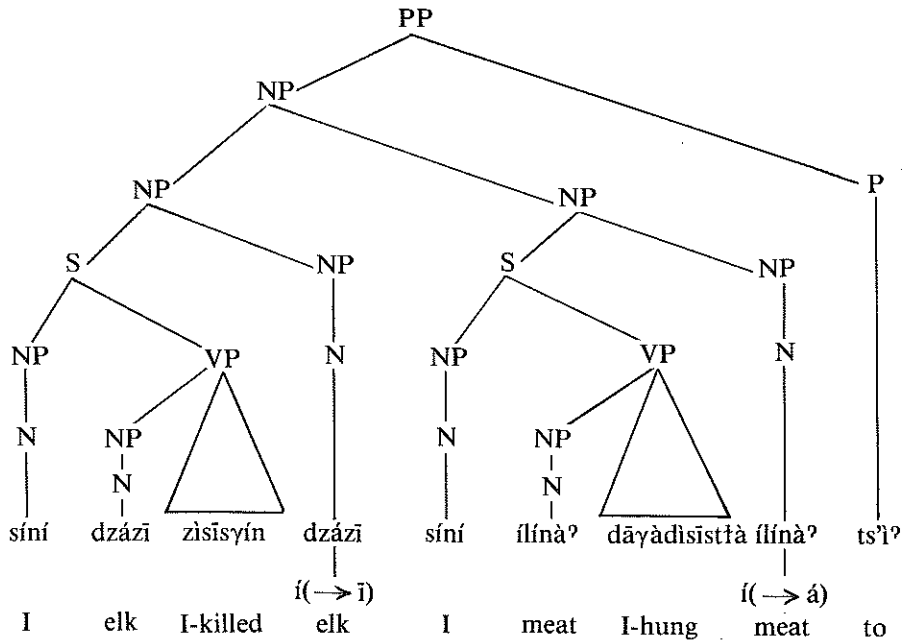


Figure 1. Underlying structure of PP in (28).

minor difference between NP and PP is that some postpositions, especially *ìh* 'with' and *γá* 'for,' may be viewed as conjunctions. This view is explored in the following chapter. Phonologically, the postposition is a free form, although its interdependence with either a preceding or following constituent is manifest in vowel assimilation (e.g., ì - γá ⟶ àγá; see [27d]) and in incorporation which is discussed in 2.23.

2.22. Adverbials.

As noted in a preceding subsection, particles of various semantic categories modify the verb. Some of these elements are closely tied semantically as well as morphologically with the verb, that is, they are governed by strict restrictions of co-occurrence; others enjoy greater freedom of occurrence. No Athapaskan literature has adequately described this aspect of verb structure. Consider the following examples.

(29) a. dámō
dámō nánìcdòtc 'I am dancing in a circle (around and around).'
dámō nìcícdòj 'I danced in a circle.'

b. dígá
dígá dīnīsís?ó 'I turned it over.'
dígá dīnīsístsùz 'I turned around a piece of paper.'
dígá mídínāɬìɬ 'It's floating around in a circle.'
dígá dīnátɬ'ìs 'A long object revolves.'
dígá dīnámòs 'A round object is revolving.'
dígá dīnáɣál 'A globe-like object is revolving.'

c. ásàà
ásàà yìstsáh-à 'Can he see him?'
ásàà nàmò?-à 'Can he swim?'
ásàà gùnáh-à 'Can he talk?'

The first two sets of examples show the distribution of the two adverbs. While the data cited above are not exhaustive, it is clear that *dígá* has a much wider range of distribution than *dámō,* which may co-occur with a few other verbs. In (29c), the yes-no question is marked by an enclitic *à* along with *ásàà,* a modal. This modal has virtually no restriction on co-occurrence with verbs. Although it is difficult to ascertain the exact nature of distributional restrictions for each adverbial with respect to verbs, it is fair to say that restrictions for *dāmò* are the greatest of the three adverbials in (29). Even so, it should be noted that *dāmò* is morphologically as well as semantically independent of the verb prefix complex. Not all adverbial elements are morphologically and phonologically independent of the co-occurring verb. A few examples will be discussed in the subsection which immediately follows.

2.23. *Incorporation.*[7]

Athapaskanists have often used such terms as "incorporated nouns," "incorporated prepositions," and "incorporated stems" in discussing derivational elements in verb prefixes. No thorough study of this process has been done in any language. The Sarcee examples presented in this section show at least one condition under which incorporation takes place.

(30) a. áctc'á yìsùz 'I have split it (bone, board).'
áctc'á yísùz 'You have split it.'
áctc'á yìyísùz 'He has split it.'
b. áctc'á-sùz 'I will split it.'
áctc'á-ázùz 'It will split.'

It is impossible to determine the semantic and morphological relationship between *áctc'á* and the rest of the verb phrase in (30), primarily because of scarcity of data. Phonologically, the relationship between the two constituents is clear: in (30a) each constituent is independent, that is, each word is not bound to the other, whereas in (30b) the second constituent, the verb proper, is bound to the first. As described elsewhere (Cook 1971c), the Sarcee verb requires phonologically at least one syllabic element in the prefix (see 11.40). Therefore, *sùz* (← s-zùz), in 'I will split it,' cannot be pronounced as an independent word, but *ázùz,* in 'it will split,' has a syllabic element, *á* in the prefix position. This syllabic element derives from *l* (classifier) assimilating to the vowel of *áctc'á* (see Cook 1971b). The l-classifier is never realized as *l* on the phonetic surface, since it always assimilates to the preceding vowel.[8] Even if it were, it would not constitute a syllabic element; that is, *ázùz* is not derivable without a preceding *á* within a word, and *lzùz* is neither an actual nor a potential word.

This type of incorporation which is governed clearly by the phonological constraint is also illustrated by the behaviour of PP, as shown below:

(31) a. gútɬ'ìs mìná k'à yìsnìl
mud his-eye to I-threw
'I threw dirt in his eye.'
gútɬ'ìs yìná k'à yìnìl 'He threw dirt in his eye.'
tc'ìyìcá mìná k'à yīsk'ìy 'I threw a rag in his eye.'
b. gútɬ'ìs mìná k'à-snít 'I will throw dirt in his eye.'
gútɬ'ìs yìná k'à-nít 'He will throw dirt in his eye.'

Unlike the case of *áctc'á* in (30), the semantic as well as the morphological identity of the PP's, *mì-ná k'à* and *yì-ná k'à,* is straightforward. In (31b), where the verb does not have a syllabic prefix, the postposition is incorporated into the verb prefix position simply because of the phonological constraint on the verb, not on the postpositional phrase.

This observation on incorporation raises a question on the status of some prefix categories, particularly "indirect object" and "postposition," as assigned in the traditional framework used by Hoijer, Li, and many others who have followed suit including this study (e.g., Davidson 1963 on Dogrib, Rice 1976 on Hare). This also leads one to other interesting aspects of Athapaskan verb morphology. First of all, the number of prefix categories is not as great as it has appeared, since the so-called "indirect object" and "postposition" could be eliminated from the prefix complex. Second, the distinc-

tion between conjunct and disjunct prefixes (Li 1946, Kari 1975) can be explained in a natural way by incorporation; it is natural to expect a looser (disjunct) boundary between an incorporated element and the rest of the prefix. The precise nature of the conditions under which incorporation takes place may not be the same for all Athapaskan languages, but it is safe to assume that the historical development indicated by this process of incorporation is shared by most Athapaskan languages, if not all. It should also be noted that the so-called *two* positional categories in the traditional framework, that is, the "indirect object" and the "postposition," function as one syntactic unit (i.e., PP), where the "indirect object" is, in our terminology, a copied pronoun. This is the reason that there is no disjunct boundary between these two elements, even though the boundary is further away from the verb stem.

It is not intended to present a comprehensive study of incorporation processes in this section. It is, nonetheless, important to point out that the phonological constraint mentioned above is not the only cause for the incorporation of postpositions, nor is the postposition the only category that may be incorporated. Consider the following examples:

(32) a. gūts'òyāká γā-dīnīīts'í-là
their-wives by-they-sit-with
'He married their wives.'
cf. gídínīs*ts'íh* 'they sat down'
nádīnāā*tc'ītc* (ná-dini-āàd-ts'ītc) 'We sit now and then.'
nánìc*dōtc* (ná-ni-s-dōtc) 'I sit now and then.'
nàγ*ánísdò?ī* 'I shall marry you.'

b. sídá nīnīγá gwàádjàgít'īγī (gù-ádjàg-í-t'ᵩīγī)
my-sister bear she-became-so
'My sister has become a bear (indeed).'

c. tsīγáà-nìsdó-là
cry-she-sit
'He sat down and wept.'
cf. sí-tsíγà? 'my crying'
ná-tsīγá-dīdìcγá-là 'He went home crying.'

d. ná-dlùk'à-dìdìcīsγá 'I'm on my way home laughing.'
cf. dádlūw 'He's laughing.'
sídlùk'à? 'my laughter'

In (a), the PP is represented by *gūts' òyākά* 'their wives' (NP) and *γā* 'by, besides' (P). There are two alternating verb stems meaning 'to sit:' one for the plural subject (*-ts'íh, -ts'ītc*) and one for the singular subject (*-dōtc, -dò?ī*). A derived theme meaning 'to marry' is based on each of these two stems with the incorporation of postpostition *γā* (along with a copied pronominal prefix, the so-called "indirect object prefix").

In (b), the second NP *nīnīγá* 'bear' is subject complement. The complement NP is often (not always) marked by *gù* which is not a postposition. This "complementizer" is incorporated into the verb prefix in (b).

In (c) and (d) a stem is incorporated in deriving a secondary theme. This type of incorporation is rare and different from the others observed in (32a-b). While none of the incorporations observed in (32) is governed by the phonological constraint observed in (31), the incorporation of *γā* and *gù* in (32a) and (32b) respectively can be seen as a kind of phonological "realignment", that is, *γā* and *gù* grammatically belong to PP and NP respectively, but they are phonologically bound to (pronounced as part of) VP.

In short, there are at least two types of incorporation: one type is phonologically bound; the other is morphologically bound, involved in the process of theme derivation (see chapter 5).

2.24. Subcategories of Adverbials.

The constituents of VP other than the verb may include one or more PP's along with one or more adverbial particles. It is not possible at this time to characterize the constraints on their relative order or co-occurrence. An attempt will be made, however, to classify more or less frequent ones by semantic-functional subcategories. Although the following three subcategories are somewhat arbitrary and oversimplified, they are useful for understanding the syntactic relationship between those adverbials and verbs.

2.24.1. Modal.

(33) a. dú 'not'
dú dīyáh '*Don't* go.'

b. tsá 'no'
tsá tú-ùlìh 'It *wasn't* water.'

c. tcìtcá 'being unable'
tcìtcá yìkà dììníɬ-lā 'He was *unable* to reach it.'

d. ásàà 'I wonder if'
ásàà ánì?-à '*Can* I say it?'

2.24.2. Manner/Degree.

(34) a. ásdà 'in the same way'
ásdà náànìtàh 'Lie down *in the same way*.'
b. tɬàsì? 'completely'
tɬàsì? nànísɣál 'It's got *pitch* dark.'
c. tīɣā 'loud, strongly'
tīɣā ádácxùc 'I'm whistling *loud*.'
d. gùdjá 'well, carefully'
gùdjá nàyìnìstí-lā 'He placed him *carefully*.'

2.24.3. Temporal.

(35) a. tōtɬ'á 'a while'
tōtɬ'á nítàh 'He slept *a while*.'
b. xánìdá 'after a while'
xánìdá tɬídááts'ì-là '*After a while* she fell in the fire.'
c. dááhì 'now'
dááhì náníyáh-ì-gù-là 'Can you come home *now?*'

Some adverbials of this category contain an element which indicates a tense as shown by the following examples:

(36) a. ásdá-*gù* nàníyà?-à
'When *did* you come?'
xíɬgā-*gù* dānídjà-dà
'Where *were* you yesterday?'
cf. àkíyí dzīnīs-*gù* gūts'ìs dìcìcā
two day-ago Calgary I-went
'Two days *ago* I went to Calgary.'
b. ìtɬ'ás-*ìdà* nīstsáh-á?à
'I *will* see you tomorrow.'
ásdá-*dà* nìníyáh-ì
'When *will* you come?'
cf. àkíyí dzīnīs-*ìdà* gūts'ìs dìcá
two day-later Calgary I'll-go
'I'll go to Calgary two days *later*.'

The use of these two suffixes, *-ìdà* and *-gù*, particularly the latter, is extremely versatile. They may be affixed to a noun, verb, or another particle, for example,

(37) a. àkíyí-*gù* gúnáh
'He talks in two *ways*.'
táá-*gù* ɣàtc'ádìnìz-là
'Three *times* he was about to hit her.'
díts'ōyá-*gù* náɣát'ī-là
'He recognized her *as* his wife.'
nádī tɬàts'īɣánáɬ-*gù*
'They *should* (it looks that way) move without you.'
b. gùɣāàdàzó (⟵ gù-ɣā-*ìdà*-zó)
'if only that happens (there-after-if-only)'
tìts'ìnínà-àdà (⟵ tìts'ìnínà-*ìdà*)
'if they move camp'
xánìdáàdà (⟵ xánìdà-*ìdà*)
'sometime *later*' (see [35b])

2.25. Order of Constituents in VP.

As shown in various examples that have been cited, VP most frequently has one constituent other than the verb. There are VP's which have two or more adverbials and PP's. While no thorough study on the relative order and relationship of adverbial constituents and PP's will be attempted, a couple of general comments are in order. Consider the structure of VP in the following examples:

(38) a. xánìdá k'ádā nádìyá-là
a-while back he-walk-M
'He walked back for a while.'
b. dāā tózík'à gūstīɣà? tòtc'ìctc'ót-á-k'à-là
here middle right-on they-shoot-N-place-M
'It was right in the middle where they shot at.'
c. kòwá gúts'í ts'ìká tú ts'ì dìyá-là
camp from woman water to she-go-M
'From the camp to water she went.'

(39) a. ìlk'óótsīí máàtòn-lā dīgīts'óyàká-àh-ílà
Bull-Head them-he-join own-wives-with-M
'Bull-Head joined them with their wives.'
b. nádìcóh nádlìh
he-go-again it-be-again
'He will go again.'

c. nágūɣísɣál nádlín-í nádjà-àsíná
it-get-dark it-be-again-N it-happen-again-. . .
'It became dark again.'

The verbs of (38a-b) are each preceded by two and three adverbials. In (38c), a PP precedes the subject NP (*ts'ìká* 'woman'); a second PP precedes the verb immediately. The verb is the last constituent in these sentences. In (39a), a PP follows the verb. The PP with postposition *ìh* (*ìł*) is often "displaced" in this way, especially when the postposition is affixed by *-ílà* (a modal?). More interesting are the last two examples in which *nádlíh(n-)* (which is rendered 'again' in free translation) occurs *after* the verb. There is no recorded example in which this word occurs before the verb within a phrase, nor is there any other adverbial occurring immediately after the verb except *djú* (see 2.12). A closer examination of the word suggests that *nádlíh/nádlíní* (where the final *í* is the relativizer) is a verb, a higher verb which dominates an embedded S. The verb stem, then, must be *-lin*[9] 'to be,' which constitutes a reflexive theme with prefix *ná-* and *d-* (classifier). With this analysis, one can maintain that the verb is the last constituent of VP.

2.26. *Subcategories of Stems ("classificatory verbs").*

The subcategorization of the verb in a language is generally intended to explain the selectional restrictions between the verb and other major syntactic categories, such as the subject noun, object noun, and adverb, or to account for such major morphological processes as inflection and derivation. These next three subsections deal with grammatical and semantic features that suggest the former type of subcategorization. The latter type of subcategorization, particularly with respect to "thematic aspect" (see 5.10), is discussed under verb morphology in chapter 5.

The category of classificatory verbs is generally known as one of the most interesting characteristics of Athapaskan verbs. In describing this category of verbs, Davidson *et al.* (1963) states, making reference to Hoijer's original work, that "a considerable number of Athapaskan verb stems . . . do not refer to particular events as do the English verbs 'stand,' 'sit,' 'walk,' and 'talk.' Instead, these Athapaskan stems (classificatory verbs) signify the states of being or actions of more or less precisely delimited categories of object." In contemporary linguistic jargon, there are strict selectional restrictions between the subject and/or object noun and the predicate verb. For instance, in an English sentence such as 'I picked it up,' the verb is relatively free of selectional restrictions since the class of nouns that may co-

occur as objects (i.e., nouns that *it* refers to) is large, not limited to a small subclass. Corresponding to this single sentence, there may be several Sarcee sentences, depending on the class of nouns involved, for example,

(40) a.	-ʔó(n-)[10]	nádìsīsʔó	'I picked it up.' (e.g., a rock)
b.	-tó(n-)	nádìsīstó	" (e.g., a stick)
c.	-tíh	nádìsīstíh	" (e.g., a child)
d.	-tcùz	nádìsīstsùz	'I picked it up.' (e.g., a quilt)
e.	-ló	nádìsīstló	'I picked *them* up.' (pl. inanimate object)

It is known that most Athapaskan languages have up to a dozen classificatory verbs; Sarcee has eight, as listed in (5.51). The categories of features that characterize these verbs are, in a broad sense, those of gender (e.g., [± round], [± long], and [± animate]), and of number. The stem sets characterized by these features and alternations between some subsets reveal a considerable degree of complexity involved in morpho-semantic structures.

2.26.1. Semantics of Classifactory Verbs. The semantics of this category of Athapaskan verbs is not adequately understood and is often misunderstood. While the reference is made primarily to the "delimited" category of objects, it also relates to the manner in which the subject noun manifests itself in stationary position or the manner in which the subject 'handles' the object. As a neuter verb *-ʔón* means 'there is' as in *sāʔó* (*si-ʔón*), which is normally understood to mean 'a round, heavy object (like a rock) is lying there.' The same verb is also used as in *tú sāʔón* 'water (a lake) is there' and *tsìs sāʔón* 'a hill is there.' In these sentences, the reference is not so much to the intrinsic nature of the class which may or may not include *tú* 'water' and *tsìs* 'hill' as to the way (shape) the object is. As an active verb it refers to the falling or spreading motion of an object (in the case of intransitive verbs) or how an object is held or transferred from one position to another (i.e., 'handled' by the agent in the case of a transitive verb). The majority of verbs which do not refer to the specific shape, state, or motion do not have the kind of alternation shown in (40).

That the stem does not make reference to merely a specific noun class—it is not just the selectional restriction between a noun and a verb that is involved—can be illustrated with the use of stem *-kòh* which is glossed as 'to handle with a dish.' In the sentence 'he is holding a dish,' the verb stem to be chosen is *-kòh* only if it contains something (e.g., food); otherwise (if the dish is empty), *-ʔón* will be chosen. The manner in which an empty dish is

handled is viewed the same way as a rock is handled. Even more striking is the way the Chilcotin cognate is used. A Chilcotin speaker who assisted me a few years ago used the verb stem with no reference at all to a specific noun; the verb refers only to the manner in which an object (e.g., a book, a piece of paper) is held with both hands.

It appears that the use of the verb has become generalized in the case of Chilcotin, which does not require selectional restriction. In the case of Sarcee, however, the problem is somewhat complicated, since it requires subcategorization and selectional restrictions along with other necessary semantic characterizations.

2.26.2 Number Categories and Stem Sets. Another important aspect of verb stem morphology that is closely related to the classificatory verbs is the alternation of stems to agree in general in number with subject or object noun of the sentence. A study of number categories with emphasis on diachronic development is presented elsewhere (Cook 1974).

Verb stems are classifiable into three subcategories with respect to number. Most of them are unmarked for number where the number distinctions are made by prefixes (e.g., *s-* 1sg vs. *-āàd* 1pl,' Ø 3sg vs. *gi-* 3pl) and/or by nominal enclitics (e.g., *-ná, -ká*; see 2.33.2). Many stems are in doublets, one of each set being used as singular or dual and the other as plural (or multiple). Some doublets consist of a singular form and a dual-plural form. The smallest subclass of stems consists of triplets where singular, dual, and plural forms make up a set. Consider the following three sets of examples:

(41) a.	*-kíh* (imp)	'to go to trade'
	dìskíh	'He has gone to trade.'
	gīdìskíh	'They (two or more) have gone to trade.'
b.	*-gùɬ* (prog)	'sg/dl animal to walk' vs.
	-ʔòs (imp)	'pl animal to walk'
	ɣīīgùɬ	'One animal is walking.'
	gāāgùɬ (← gi-ɣi-gùɬ)	'Two animals are walking.'
	gīdīsʔòs	'Several animals will walk.'
c.	*-yáh* (imp)	'sg to walk' vs.
	-t'òs (imp)	'dl to walk' vs.
	-dàɬ	'pl to walk'
	dìyáh	'He starts to walk.'
	gídít'òs	'They (two) start to walk.'
	gídídàɬ	'They (three or more) start to walk.'

Notice that subject prefix *gi-* is interpreted as 'dual' or 'plural' depending on the contrast made in stems. Another important aspect of stem alternation, which makes the subcategorization more complicated, is the neutralization of gender categories observed in *-ló*. This plural stem pairs with all the singular classificatory stems listed in (40) except one, *-tíh,* whose plural-counterpart is *-tàs* (see [43b]). In other words, the two plural forms *-ló* and *-tàs* maintain the animacy distinction, but other distinctions made by the singular classificatory stems are neutralized in the plural stem. *-dàɬ* is another plural stem shared by more than two different stem sets, as exemplified by the following data:

(42) a.	*ɣìt'òh*	'It is flying.'
	gā*t'òh* (gi-ɣi-t'oh)	'They (dl) are flying.'
	dàgā*t'òh*	'They (pl) are flying.'
	cf. d*ídàɬ*	'They (pl) start to fly' (imp.).
	ɣídìɬ	'They are flying' (prog.).
b.	īdìs*gàh*	'I'll go off with a pack.'
	īdāà*gàh*	'We (dl) will go off with a pack.'
	īdāà*dàɬ*	'We (pl) will go off with a pack.'

The stem *-t'òh* is used either as an unmarked form where the plural is distinguished from the dual by the distributive prefix *dà-,* or it may be used as a marked ([-plural]) stem where the plural form is suppleted by *-dìɬ.* This plural stem is shared by (42b) as well as (41c). These stem alternations demonstrate that there are three subsystems of number category that are reflected in verb stem morphology:

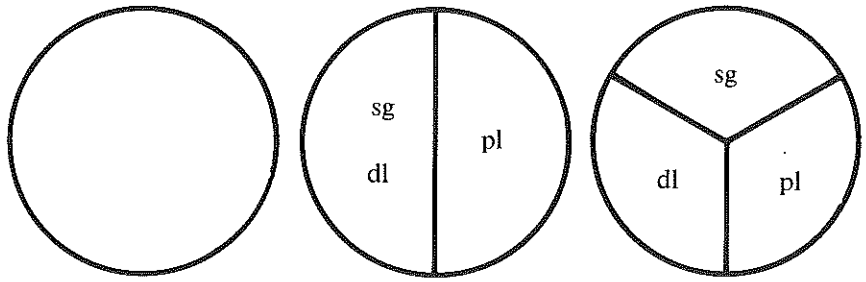


Figure 2. Number category and verb stem sets.

One might wonder whether there is any doublet in which a singular stem contrasts with a duoplural stem, as the two stem entries in Li's list might suggest: *-γáh* (imp) 'to kill one living being,' *-γón* (imp) 'to kill several' (1930: 17). But *-γáh* is not a singular form; it is a singular-dual form, and a *-γón* is a plural (multiple) form (see [49d]). Interestingly, Navajo cognates of this doublet contrast singular vs. duoplural (Young and Morgan 1972: 44). Although I have noticed some measure of inconsistency in the use of the doublets by some native speakers, I have no clear evidence for any singular vs. duoplural doublets.

2.26.3. Semantics of Plural Forms. With unmarked stems there is no problem of number agreement or interpretation, since the number is marked in the prefix, an independent NP or both. For example, in (41a), the number distinction is made by prefixes, that is, Ø for 3 sg and *gi-* for 3pl. In the doublet sets, the number category is marked jointly by the stem and prefix, that is, there is an apparent agreement rule. For example, in (41b) *-gùɬ* occurs with either a singular (i.e., Ø in *γīīgùɬ*) or a plural (*gi-* in *gāāgùɬ*) prefix, but the fact that *-gùɬ* is not singular in *gāāgùɬ* is marked by *gi-*, and at the same time the fact that *gi-* is dual (not plural) is marked by *-gùɬ* (vs *-ʔòs*). On the other hand, the third example of (41c), *gi-* is interpreted as plural (not dual) because of the plural stem *-dàɬ* which does not normally occur with a singular subject (see below).

With this analysis, consider the two forms in (42a), *dídàɬ* 'They start to fly' and *γídìɬ* 'They are flying.' The question is why *gi-* does not occur in these plural forms. It happens that *gi-* may occur, so that *gīdídàɬ* and *gāādìɬ* are synonymous with the first and second forms respectively. Other forms with a plural stem suggest that *gi-* is optionally deleted, presumably because of the redundancy. This, however, does not account for all the cases in which the rule of agreement is apparently violated. Consider the following examples in which two sets of plural stems are used without a plural prefix or an independent plural subject NP.

(43) a. *-dìɬ* (prog), *-dál* (perf) 'pl to move'

tīnā	gūk'à γìh	*γīdìɬ*-lā
track	after him-with	she-was-walking

'Following the tracks she was walking with it (in company with others).'

ìtsáhà-ʔī ìsīnā	γáh	ts'ó	γìh	nàní*dál*-là
oldest-the	home	outside	it-with	they-arrived

'She arrived with it at the outside of the oldest son's home (in company with others).'

b. *-tàs* (imp), *-táz* (perf) 'pl to lie down'

mìh	kúnìì*tàs*
him-with	you-lie-down-in

'Come in with it and lie down (stay with us).'

γìh	kúγīītáz-là
it-with	she-lied-down-in

'With it she entered and stayed.'

The above sentences are taken out of a text entitled "The one who was raised by his grandmother." While an old lady is travelling in a group, she finds a baby crying in the grass. With it she travels and arrives at her son's tent where the people have stopped to camp. In the first two sentences, the plural stem is used without *gi-* (3pl). It cannot be considered that *gi-* is deleted here because the subject is *she* (the old lady). In other words, the subject prefix of the verb is Ø instead of *gi-*. With the underlying singular subject NP (ts'ōōtsà 'old lady'), the number agreement does not hold. The verb stem cannot be considered "unmarked" not only because it does not mean that she is walking alone, but also because it does not indicate a dual subject. A more interesting example is the first sentence of (43b) in which the subject prefix is *ni-* (2sg). This sentence provides clear evidence that the subject prefix in the other three sentences is not (deleted) *gi-* but zero (3sg).

If a plural stem can co-occur with a singular subject as well as a plural subject, then it cannot be explained by an agreement rule. A solution can be found in a semantic interpretation rule where the so-called plural stems are marked negatively for dual. Like the unmarked stems, the plural stems may occur with either a singular or a plural subject. With a plural subject, *-dàɬ* means 'three or more move,' and with a singular subject it means 'one moves in company with two or more.'

There are doublets which indicate number distinction in object noun; for example, *-γáh* 'to kill' (sg/dl) vs. *-γón* 'to kill' (pl), *-γóh* 'to throw (sg/dl) long object,' vs. *-dàɬ* 'to throw a rope or several objects.' This plural stem, which is used in a transitive (causative) sentence, is probably identical to *-dàɬ* in the intransitive sentences cited in (42). In any case, the number distinctions made in the object noun is sg/dl vs. pl (i.e., there is no dual as a separate category), and there is no agreement or interpretative problem.

2.30. NOUN PHRASE (NP).

The noun phrase may be represented by a single noun whose internal

morphological structure may be simple or complex (i.e., affixed, compounded), or by a noun together with as many as five constituents that may precede or follow the head noun. According to the syntactic characteristics of these constituents and the internal morphological structure of the noun, nouns may be classified into the following three subcategories: interrogative (or indefinite) pronouns, personal pronouns, and nouns.

The interrogative, which may also be used in non-interrogative sentences, occurs alone without any modifiers, that is, it alone represents a NP. The personal pronouns usually occur alone, but may also be followed by *zó* (delimiter) and *djú,* which is treated as a constituent outside the domain of NP as discussed in 2.12.

Preceding the position of a (head) noun (N), there are two optional positions that may be filled by a deictic-demonstrative (DD) and a quantifier (Q) in that order. The relative clause (S) may occur immediately following the noun.[11] Two other optional constituents that follow the noun (and relative clause) are the determiner (D) and the delimiter (DL) in that order. The subcategorization of nouns and the relative order of other nominal constituents are summarized in the following table.

<table>
<tr><td colspan="5">Interrogative Pronoun</td><td rowspan="3">(DL)</td></tr>
<tr><td colspan="5">Personal Pronoun</td></tr>
<tr><td>(DD)</td><td>(Q)</td><td>N</td><td>(S)</td><td>(D)</td></tr>
</table>

Table 1

2.31. *Interrogative Pronouns.*

As mentioned briefly in 2.11, the yes-no question is marked by *-ì* along with *-là* or *ásàà*. The grammatical characteristics of WH-questions are much more complex. Every WH-question is characterized by (i) an independent interrogative pronoun as in (44), (ii) an independent interrogative pronoun together with a postposition (i.e., PP) or another enclitic as in (45), or (iii) by affix *dà* followed by *-à* (*-ì*) as in (46).

(44) a. ādáɣá 'who' ādáɣá-ʔà 'Who is it?'
b. dìt'á 'what' dìt'á-ʔà 'What is it?'

c. xàt'àá 'what (kind)'
xàt'àá ínìsnòʔ-áʔà 'What (kind) do you eat?'
d. dànìit'á àlí-dà 'How many/much are there?'

(45) a. dìt'á kó 'what for'
dìt'á kó dínì 'What did you want?
=For what did you ask?'

b. ásdá-{gù / dà} 'when'

ásdá-gù nàníyá-ʔà 'When did you come?'
ásdá-dà díyáh-ì 'When are you going?'
c. dàdínàà-t'à-à ãsìts'ìsínì-ì
what-you-said they-treat-me-thus
'What did you say for them to treat me like this?'

(46) a. dànìit'á-dà-à 'how much/many?'
b. dàcdjàdà-à 'What did I do?/Where was I?'
c. dàdjàdà-à 'What has become of him?/Where is he?

Each of the four questions in (44) begins with a WH-constituent that has a simple nominal structure. The WH-constituents in (45) are analyzable into two or more elements. Particularly interesting is (45c) which appears to have a question clause represented by *dàdínà-à-t'à-à* (dàdínà-ì-t'à-ì). This particular example also belongs to (46) having prefix *dà-*. The verb stem of (45c) is *-nà* 'to say,' and what follows the stem is the past morpheme. *-t'à* is a modal (assertive; see 2.11) and what follows this modal is either another modal (question) *-ì* or a conjunction (see chapter 3).

The question sentences in (46) are doubly marked by *dà* both prefixed and suffixed. The last two are based on a verb whose stem is *-djà(g)* 'to happen (perf).' Notice *c-* in (46b) which represents *s-* (1sg) being assimilated to the stem-initial consonant. It is not immediately clear whether or not (46a) is also based on a verb stem. The final vowel in (46b-c) obviously represents *-ì* (question modal).

The type of questions exemplified by (46) is different from those in (44) and (45) in that it does not have an independent WH-constituent preposed from its usual position. An example like the following further complicates the analysis of interrogatives marked by *dà:*

(47) a. dàt'áná-ʔī nāɣát'āʔ-à 'Which one (of those) pitied you?'

dàt'áná-ʔī is apparently a WH-constituent, but it is the only one that has *-ʔī* (determiner) in it. For this reason it cannot be treated as an interrogative pronoun if the analysis shown in table 1 is adhered to.

Another point to be mentioned in this subsection is that what is called an interrogative pronoun is an indefinite (or "unspecified;" see chapter 7) pronoun used in an interrogative sentence. Compare now *ādáγá, xàt'àá,* and *dànììt'á* in (48) with those in (44).

(48) a. ādáγá gùnáh
'I wonder who is here = Somebody is here.'
b. dú xàt'àá ísnò?-á?à
'I don't eat that kind.'
xàt'àá síγìsgùts'
'He picked on one in a big way.'
c. dànììt'á gùnáh gīyístáz-là
how-many-times it-happened they-slept
'A certain number of times (no matter how many times) they slept.'

In short, the interrogative/indefinite pronouns are a noun subcategory that represent a NP without any co-occuring constituents within it. As WH-constituents they are always preposed and may co-occur with a postposition (e.g., *kó*) or an enclitic (e.g., *gù*).

2.32. *Personal Pronouns.*

Following are the independent personal pronouns.

Number / Person	sg	pl
1	síní	nāání
2	níní	nīhíní
3	ídíní	īgídíní

Table 2

These pronouns seldom occur in sentences while person and number are obligatory prefix categories in the verb (and in a noun subclass). The underlying personal pronoun representing subject NP or object NP is normally deleted unless it carries emphasis. The pronouns of other functions as in possessive constructions and PP's also carry emphasis; otherwise they are

deleted where the pronoun is copied to the noun. The following are a few examples in which independent pronouns are used emphatically:

(49) a. síní zó 'only *me*'
b. níní ní-ts'òyá '*your* wife (not mine)'
c. síní sī-ts'ì 'facing *me*'
d. níní ìyīná gùkádìná zísγāh síní ìyīná gúts'ígànázìsγāh
you those back-ones you-kill I those front-ones I-kill
'*You* kill those who are behind; I will kill those in front'

The grammatical oppositions made available in the independent personal pronouns are simple, but a much more complex system is used in prefixes, especially in the third person, for example, *i-* (unspecified) vs. *mi-* (specified), *di-* (reflexive), *atti-* (reciprocal), and so on. Furthermore, the pronominal prefixes closely interact with some syntactic rules (e.g., the choice of *γi-* [4p] is governed in part by an NP movement rule). Although no comprehensive study of pronominal prefixes vis-à-vis syntactic rules is intended, salient morphological characteristics of pronominal prefixes are presented in chapter 7.

2.33. *Nouns.*

The third category of nouns (N in table 1) represents all nominal forms, including the simple nouns (*más* 'knife,' ?áx 'snowshoe') that may be inflected, the "inherently possessed" nouns that occur always in inflected forms (e.g., *ì-nó* 'my mother,' *sí-tsì*? 'my head'), and various other forms (mostly compounds) of derived nouns. Nouns derived via relativization (of underlying S) are reserved for discussion in chapter 4.

Sapir's study of personal names (1923) contains interesting forms that derive from verbs. Hoijer and Joël's subclassification of nouns (1963) are based on the internal derivational and inflectional characteristics of nouns. Neither of these studies deals with other constituents of NP (see table 1). I shall briefly comment on the morphology of nouns before commenting on the syntactic characteristics of the optional constituents within NP.

2.33.1 Inflected nouns. Such free forms as *mìs* 'river bank,' *tsò* 'beaver,' *zòs* 'snow,' are never inflected. There is apparently a class of objects that may never be "possessed."[12] There is another subclass of nouns which may occur either in free or possessed forms. These are inflected with pronominal prefixes with or without suffix *-à*(?), along with other phonological changes. Nouns that are inflected only with pronominal prefixes are mostly

body-part and kinship terms (see [51]). Examples of nouns that are inflected with both pronominal prefixes and suffix *-à*(ʔ) are given below.

(50) a. ʔáx 'snowshoe'		b. más 'knife'
sì-ʔáx-à(ʔ)	1sg	sì-máz-à(ʔ)
nì-ʔáx-à(ʔ)	2sg	nì-máz-à(ʔ)
mì-ʔáx-à(ʔ)	3sg	mì-máz-à(ʔ)
dì-ʔáx-à(ʔ)	Reflexive	dì-máz-à(ʔ)
γì-ʔáx-à(ʔ)	4sg	γì-máz-à(ʔ)

di- (reflexive) and *γi-* (4p) are coreferential and non-coreferential respectively to the sentential subject of third person. The stem-final consonant alternation observed in 'knife' is discussed in chapter 1 (see 1.13).

Nouns which always occur in inflected forms are those referring to body parts and kinship relations. Consider the following partial paradigms.

(51) a. -tsìʔ 'head'		-cìtɬ'á 'younger brother'
sí-tsìʔ	1sg	ì-cìtɬ'á
ní-tsìʔ	2sg	nì-cìtɬ'á
mí-tsìʔ	3sg	mì-cìtɬ'á

Unlike the inflected forms in (50), no suffix is added to the inflected forms. A couple of irregularities are observed in the 1sg prefix. Instead of *si-, i-* occurs in kinship terms in almost all cases. One exception is *gì-níγá* 'my older brother' instead of expected *ì-níγá* (cf. *nì-níγá* 'your older brother,' *mì-níγá* 'his/her older brother'). Another is an apparent metathesis of *si-* to *is-* as in *ís-ts'òyá* 'my wife' (cf. *ní-ts'òyá* 'your wife') and *ís-dàdzàʔ* 'my younger sister.' Forms like *sí-dàdzàʔ* 'my younger sister' and *sí-kòlà* 'my husband' were also recorded recently, suggesting change owing to analogical pressure.

The paradigm of *-nó* 'mother' is worthy of special comment because of the irregular (in one sense, but regular in another) phonological processes. In this paradigm, only 1sg form *ì-nó,* whose prefix is in the form of V alone, is not affected by the phonological rules to be mentioned. All other forms whose prefix is in the form of CV or CVCV undergo two processes. First, after the prefix the stem-initial *n* is deleted whereby the prefix vowel and stem vowel are juxtaposed. Second, the prefix vowel completely assimilates to the stem vowel; hence *ni-nó* ⟶ *ni-ó* ⟶ *nóó* 'your (sg.) mother,' *gu-nó* ⟶ *gu-ó* ⟶ *góó* 'someone's mother,' *digi-nó* ⟶ *digi-ó* ⟶ *dìgóó* 'their own mother,' etc. The processes are irregular in that no other stem-initial *n* deletes in a similar phonetic environment, nor does the first vowel

always assimilate to the second vowel. In other environments, *i* is deleted before *o,* but this is not the case here. On the other hand, the processes are regular in the sense that *n*-deletion applies throughout the paradigm and so does the rule of vowel assimilation, regardless of the vowel qualities.

The vocative suffix *-à* is affixed to those kinship terms which may be used as such; for example, *ìtóò* 'Father!' (cf. *ì-tó* 'my father'), *ìnóò* 'Mother!' (cf. ì-nó 'my mother'). *tɬòò* occurs only as a vocative form, suppleting terms referring to children (son, daughter, grandson, etc.).

2.33.2. Plural and Collective Nouns. Nouns normally do not inflect for number, but a small subclass of nouns, primarily those referring to kinship relations, may occur in the combined plural and collective form that is suffixed by *-ká* or *yìná.*[13] These two forms do not indicate only plurality or collectivity. The distribution of the two forms suggest that they also indicate deference, as exemplified by the following forms:

(52) a. singular	i- (si-)	plural/collective
ī-cīγá	'woman's grandchild'	ī-cīγá-ká
ì-cìtɬ'à	'younger brother'	ì-cìtɬ'à-ká
ís-ts'òyà	'wife'	ís-ts'òyà-ká
b. ts'ìká	'young woman'	ts'ìkūwá
tɬítc'á	'dog'	tɬítc'á-ká

(53)			
	sī-dá	'older sister'	sī-dá yìná
	sì-nìdàlúwá	'sister-in-law/ woman's brother-in-law'	sì-nìdàlúwá yìná
	gì-náγá	'older brother'	gì-náγá yìná

tɬí(tc'á) 'dog' and *ìstɬí* 'horse' (which derives from 'dog') are the only non-human nouns that may be pluralized by *-ká*. The possessed form of these two nouns are homophonous, for example, *sì-lí-ká* 'my dogs/my horses,' which suggests semantic expansion of *tɬí*. Another interesting semantic expansion is that *tɬí* also means 'domestic animals' (which included buffalo and cattle in earlier days). *-ká* may also be affixed to a numeral or a relative clause only if the head of the NP is affixed by *-ká* as a kind of agreement, for example,

(54) a. gūnìsnóní-*ká*	tɬí-*ká*	nàníló-là	
nine	dogs	she-laid	
'She gave birth to nine dogs.'			
b. ìyí tɬí-*ká*	nīt'ín-í-*ká*	xàt'àá-ká	īsnòʔ-áʔà
these animals	you-own-N	those	I-eat

'The domestic animals that belong to you, that kind of animal, I eat.'

c. tɬí-*ká* ìgùɬí ìsīnā táγásdìɬ-í-*ká* náγàà?òɬ-là
dogs even to-water-they-threw-N they-swam-across
'Even those dogs that were thrown into the water swam across.'

In other words, by a process of agreement, *-ká* may be redundantly affixed to forms (e.g., numerals, relatives) other than the small subclass of nouns.

Another subclass of nouns that may form a plural and collective counterpart by suffixing *-ká* is composed of terms referring to a special reciprocal relationship that is marked by one of the two reciprocal prefixes, *as-* or *atɬ-*, for example,

(55) a. ásts'òyá-ká 'man and wife' (ones who are married to each other)
cf. ísts'òyáká 'my wives'
b. ás-dàdzà-ká 'sisters' (of each other)
cf. ìsdàdzà-ká 'my younger sisters'
c. ás-tɬásà-ká 'male chums' (a pair of)
ás-dínà-ká 'female chums'

(56) a. átɬ-ìsgā-ā-ká 'parent and child' (male or female/human or animal)
cf. ìsgāká 'young men'
b. àtɬ-ìcìtɬ'à-ká 'brothers'
cf. ìcìtɬ'à-ká 'my younger brothers'
c. àtɬ-ìsúwá-ká 'grandmother and grandchild(children)'
cf. ìsúw 'my grandmother'
d. àtɬ-ìcìγá-ká 'grandmother and grandchild(children)'
cf. ìcìγá 'my grandmother'

Note that *as-* is chosen for (55) and *atɬ-* for (56). The choice between the two reciprocal prefixes appears accidental. On the other hand, it is tempting to conclude that *as-* indicates a mutual relationship of equal status and *atɬ-* of unequal status with the exception of (56b). It should also be noted that not all reciprocal terms have a *-ká* suffix, for example, *sàátɬìk'à?* 'my siblings of either sex,' *átɬìsnāzúwá* 'parent-in-law and son-in-law,' *átɬìxàlíkúwá* 'old husband and wife' (cf. *xàlítsà* 'old man').

Of *-ká* and *yìná,* the latter covers a wider range of meaning and distribution. While *-ká* is limited to terms primarily of relationships, *yìná* is found in other nouns, such as personal names, for example, *ìlk'ōōtsíí yìná* 'Bull-Head and his companion,' *más mīk'áátùní yìná* 'Cut-Knife and his companion'; kinship terms, for example, *gìmítɬìk'à yìná* 'their parents'; and after a demonstrative, for example, *dìná yìná* 'these people.' In these examples, it is clear that *yìná* does not indicate plurality in its usual sense, but rather "collective." As mentioned above, *yìná* contrasts further semantically to *-ká* by indicating deference of the speaker to the referent or to the addressee.

There are several plural nouns which are formed neither by *-ká* nor by *yìná,* that is, *ts'ìkúwá* 'young women' (sg. *ts'ìká*), *k'òt'únáγá* 'middle-aged men' (sg. *k'òt'íní*), *xàlíkúwá* 'old men' (sg. *xàlítsà*), *ts'ìdóókúwá* 'boys' (sg. *ts'ìdóó*), and *ìt'āākúwá* 'girls' (sg. *ts'ìdáátsá*). Note that most of the above plural forms end in *-kúwá*. Two other forms that end in *-kúwá* are found in Goddard's texts: *ìsgāākúwá* 'young men' (sg. *ìsgīyá*), *tɬíkúwá* 'dogs' (sg. *tɬí*).

Those two forms found in Goddard's texts are used alternatively along with the other two forms: *ìsgāāká* 'young men,' or 'children of both sexes;' and *tɬìká* 'dogs,' the only forms used in contemporary Sarcee. These older forms suggest that a larger class of nouns existed at one time, especially those referring to the categories of persons by sex and age, which inflected for number; they also suggest that the irregular plural forms cited above are residual forms.

2.33.3. Nouns with Qualifiers. The qualifiers are not free forms having a fixed position immediately after the noun, nor are they suffixes in the usual sense. For the purposes of the discussion, however, the qualifiers are not considered an independent constituent within NP, that is, no position is provided in table 1 for the qualifiers. Two most frequently used qualifiers are *tsìtɬ'á* and *tcúw,* which are obviously related to verb stems *-tsìtɬ'á* 'to be small' and *-tców* 'to be big.' Not every qualifier is traceable to a verb stem. Nouns with a qualifier are different morphologically and semantically from nouns with a relative clause. The former is like a compound and the latter a phrase, comparable to the English nominal compound *blackbìrd* and phrase *black bírd.* Consider the following examples:

(57) a. xàkídjí-tsìtɬ'á 'little chief'
cf. nìts'ìtɬ'á 'It's small.'
dìná-tsītɬ'á 'small man'
nàk'ús-tsìtɬ'á 'small cloud'
b. níctc'í-tcúw 'big wind' (sibilants assimilated)
cf. nísts'íy 'It's windy.'

	mìst'ūdí-tcúw	'big pipe'
	cf. ìst'úd	'He smokes.'
	γúc-tcúw	'thigh' ('big leg')
	cf. sìγús	'my leg'
c.	xàní-tíγí	'buffalo'
	cf. xàní	'cow' or 'buffalo'
	dìná-tíγí	'real (indigenous) people, Sarcee Indian'
	ká-tíγí	'real (indigenous) shoe, moccasin'
d.	tɬì-yáná	'old dog'
	cf. tɬí	'dog'

There is at least one good argument to support the view that the above (noun plus qualifier) examples are words (compounds) rather than phrases. In 'big wind' and 'thigh,' the underlying *s* becomes assimilated to *c* by a well-known sibilant assimilation rule which exists in many Athapaskan languages. The domain of this rule is the word rather than the phrase. That the two elements constitute one semantic unit rather than a descriptive phrase is well illustrated by the examples in (c). The original meaning of *xàní* is 'buffalo,' which has undergone semantic expansion with the introduction of cattle. Now the distinction between the indigenous animal and cattle is made by *-tíγí*. Notice that *xàní-tíγí* represents one semantic unit. *ká* 'shoe' and *ká-tíγí* are another pair of words comparable to *xàní* and *xàní-tíγí*.

Distributionally, *tsìtɬ'á* and *tcúw* may be appended to a fairly large number of nouns; *tíγí* is much more limited than those two above and *yàná* never occurs with any other noun.

It should be pointed out that the *noun plus qualifier* construction differs, at least morphologically from the true compound which is the concern of the immediately following subsection.

2.33.4. Compounds. The most common type of compounds consists of two nouns or one noun plus a noun stem, for example,

(58) a.	tsúùt'ínà ts'ìká	'Sarcee woman'
b.	īt'ósí tùwà?	'tea' (leaf's water)
c.	más yìsdlā	'knife case' (knife skin)
(59) a.	xànítíγí-γù?	'buffalo tooth'
	tcìz-k'ùs	'duck neck'
b.	ìlk'óótsī-í	'Bull-Head' (personal name)
c.	dìt'óní-tcák'à-á (a ⟵ i)	'Eagle-Ribs' (personal name)

(58b) and (58c) are in the possessed form, the former with suffix *-à(?)* and the latter with prefix *γi-* (4p). Note that fourth person (*γi-*) instead of third person (*mi-*) is used where 'skin' is not part of or possessed by 'knife' (cf. *tsò mī-zóláá* 'Beaver-Collar' = beaver-his-collar-the).

The second constituents of the compounds presented in (59) are stems of inherently possessed nouns. The personal names are further marked by *-í* which Sapir (1923) identified as "relative." I shall discuss the identity of this form in chapter 4.

The compound is analyzable into its immediate constituents in which the second constituent is the head. This analysis holds also for compounds of three words, in which two make up a constituent against the third, which is the head.

(60) a. más yìsdlā tɬ'úlà?
'string bundle of knife sheath' (knife-skin-string)
b. mīīkōyí dììdìlī dzūlá
'mother of pearl earring' (shell-iron-ear-ring)
c. dìní xàkídjí-tsítɬ'á γúc-tcúw
'this little-chief's thigh'

The first two compounds (a-b) have the same constituent structure in that each compound contains within it another compound as illustrated by the following diagram.

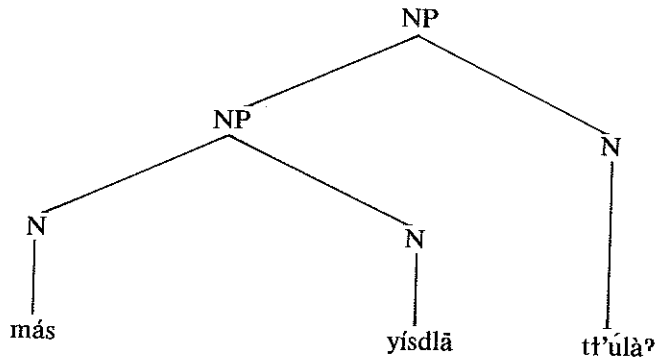


Figure 3a. Constituent structure of (60a).

The head of the higher NP is *tł'úlà*ʔ, which is modified by the lower NP, a compound whose head *yísdlā* is, in turn, modified by *más*. The third example of (60) differs from the other two in that the compound *xàkídjí-tsìtł'á γúc-tcúw* is modified by *dìní*, a demonstrative-deictic (DD). Each constituent of the compound is represented by a noun plus a qualifier. The following diagram illustrates the constituent structure of (60c):

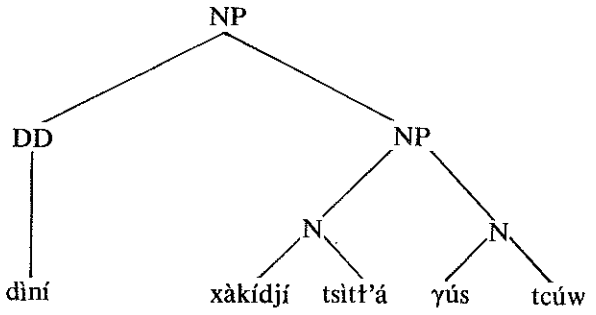


Figure 3b. Constituent structure of (60c).

2.33.5. Nouns Derived from Verbs. Nouns that derive from verbs (or sentences) are of two semantic types: abstract nouns and concrete nouns. Abstract nouns are in two different morphological shapes: the verb form used as a noun without any apparent structural change, as in (61), and the verb that assumes the structure of the possessed noun, as in (62). The concrete nouns that derive from verbs are marked by one of two "relatives" *-í/-á* and *-ná*. These relatives are nominalizers from a strictly morphological point of view. From a syntactic point of view, they are complementizers (or relativizers). Since the details of relative clause formation are discussed in chapter 4, only a brief discussion with typical examples is provided here.

(61) a.	nīcdój (ni-s-dój)	'dancing'
	cf. nīsdóh	'I will dance.'
	nánīcdòj (nà-ni-s-dòj)	'I keep dancing.'
b.	ìyííjáj (i-γi-γi-l-yáj)	'rationing'
	cf. ìyííyá	'He is going for rationing.'
	ìyīnīcó (i-γi-ni-s-yó)	'I am going for rationing.'
c.	gùts'íh	'(woman's) jealousy'
	cf. gùnísts'íh	'I (woman) am jealous.'
	gústs'íh	'She is jealous.'

This type of abstract nouns is rare, and what morphological changes are involved in this derivation is not apparent. *nīcdój* 'dancing' has the iterative verb stem with tonal change. The stem of *ìyííyá* 'rationing' seems to be related to the verb 'to go,' but this verb does not have *-yaj* as an inflected stem. The derivation of *gúts'íh* 'woman's jealousy' apparently does not involve any morphological process, whereas a comparable word, 'man's jealousy for woman,' derives via nominalization: *íts'íyìnīhí* '(man's) jealousy = that someone is jealous' vs. *íts'íyìnīh* 'someone is jealous.'

On the other hand, the abstract nouns that refer to "manner" have the morphological characteristics of the possessed noun, that is, the Pro-stem-*àʔ*:

(62) a.	mì-yìtł'áł-àʔ	'its way of running'
	cf. yìtł'áł	'It is running.' (prog)
b.	máàʔòłàʔ (mi-γi-ʔòł-àʔ)	'its way of chewing'
	cf. yíʔòł	'He is chewing it.' (prog)
c.	mī-gūnáh-àʔ	'his way of talking'
	cf. gùnáh 'He talks.' (imp), gùnáj 'telling'	

The progressive aspect form of the verb is most frequently used in the derivation of the abstract nouns that refer to manner.

Following are typical examples of nouns that are derived by way of relativization:

(63) a.	íyìsnìh-í	'the one who is pushing'
	ítcí díkòd-í	'board = stick that is broad'
	nìsk'á gùlòg-í	'god = earth he has made'
b.	ìnìsʔídj-á	'thief = one who steals repeatedly'
	cf. cīdjón-á (si-djón-á)	'old ones'
c.	tìnínó-ná	'those who have moved camp'
	cf. tìná-ná	'those who will move camp'
	dìná nìtłó-ná	'many people (people they-are-many)'
	gùdjá ìdītc'óc-ná	'the one who shoots well'

Of the three nominalizing elements, *-í* is the least marked, that is, the most general, both semantically and syntactically; whereas *-ná* is marked in that the nominalized form refers to human only. *-á* occurs the least frequently of all, and it seems to alternate with *-í* with a diminutive connotation.

Both *-í* and *-ná* may also be affixed to forms other than verbs, particularly to locatives and quantifiers, for example,

(64) a. táγà-á (a ⟵ i) 'What is in the water?'
gū?òná-á 'What is on the other side?'
γúnìt'ásī-í 'the thing or person in the north'
ts'íyìγà-á 'the one (thing or person) out east'
b. ts'íyìγà-ná 'the easterner'
ākí-ná 'two people' (cf. ākíyí 'two')
tɬò-ná 'some people'
mò-ná 'people on the warpath'

There would be no apparent motives to postulate a syntactic rule, that is, relativization, if *-í* and *-ná* were to be suffixed *only* to non-verbal forms such as those in (64). Furthermore, it is not only the verb which turns into a nominal that needs to be accounted for; there are other constituents still remaining within the derived nominal that require an accommodation. Particularly interesting are words like 'board,' 'god,' and 'the one who shoots well,' among others. The underlying sentential constituents in these derived nominals are, respectively, *ítcí* 'stick' (subject), *nìsk'á* 'earth' (object), and *gùdjá* 'well' (adverbial). The functional relationship of these and other constituents can best be explained if the process involved in the derived nouns is viewed as a syntactic rule rather than a simple morphological (derivational) process.

This concludes discussion on numerous subcategories of nouns and nominals that represent N within NP (see table 1). The following subsections deal with "optional" constituents that co-occur with N.

2.34. Deictic-Demonstratives (DD).

The constituent DD, along with Quantifiers (Q), is considered optional within NP as presented in table 1, despite the occurrence in the texts of DD as well as Q without a following noun. The present analysis, therefore, assumes that certain (redundant or recoverable) nouns are deleted after DD or Q. Since there are no recoverable DD's or Q's, no deletion of these categories is assumed.

As shown in 2.20, there are locative-temporal sets of quadruplet/quintuplet deictic-demonstratives. Table 3 shows a quadruplet set of deictic-demonstrative pronouns:

	sg	pl	gloss
I	dìní	dìná	near 1p
II	náàhí	nōònà	near 2p
III	nùγú	nùγūná	away from 1p/2p
IV	dóòhí	dōònà	out of sight

Table 3. Deictic-demonstratives in quadruplet set.

This set was elicited by Sapir out of context, and it is not possible to determine how accurately the quadruplet distinctions are maintained or how frequently they are actually used. It is also important to note that the above set is coreferential exclusively to the human noun.

2.34.1. Triplet Set. On the basis of textual analysis, however, I have postulated a triplet set (table 4).

	sg		pl		Gloss
	+human	-human	+human	-human	
I	dìní	dìyí	dìná	dìyí	'this/those' (immediate)
II	ìyí				'that/those' (proximate)
III	nùγú				'yonder one(s)' (peripheral)

Table 4. Deictic-demonstratives in triplet set.

The use of each of the above forms is illustrated below with examples from texts. The gender distinction (human vs. nonhuman) as well as the number distinction is made only in I (immediate), for example:

(65) a. dìní xàkídjí ìsíná 'as for this chief'
dìní ìsíná míts'òyà 'as for his wife'
dìní ìk'óótsìí 'this Bull-Head (personal name)'
dìní más mīk'áátùní 'this Cut-Knife (personal name)'
dìní ts'ìká-ʔī 'this young woman'
b. dìná àsts'òyáká-ʔī 'this married couple'
dìná yìná 'these people (Sarcee)'
dìná ts'ìkúwá-ʔī 'these women'
dìná k'at'únáγá-ʔī 'these men (middle-aged)'
dìná sītínáàná-ʔī 'those who are sleeping'

dìná, the plural counterpart of *dìní,* occurs less frequently in texts and no textual example of its occurrence with a possessed noun or personal name is readily available. Nevertheless it is safe to assume that such a sequence is grammatical. It is apparent that *dìní* as a demonstrative shares the same lexeme as in the personal pronoun *ídíní* (3sg), whereas *dìná* is lexically identical to a noun *dìná* 'person, people.'

dìγí, unmarked as to number, may precede any noun other than the human noun:

(66) a. dìγí sìts'ìdà? 'this robe of mine = this my-robe'
dìγí tsí 'this paint'
dìγí tsìs 'this hill'
dìγí ítcí-tsìtɬ'á 'this little bush'
b. dàdínàá-t'áà dìγáásìts'ìsínì-ì (dìγí à-sīts'ìsínì-ì)
what-you-said-for this someone-treat-me-thus-past
'What did you say for them to treat me like this?'
c. dìná sītìnáànáná-ʔī dìγí ts'ìcjīɬdj-í-īnā
these who-were-sleeping-the this that-someone-was-shouting
ts'ánágínídzù-lā
they-woke-up-suddenly-M
'Those who were sleeping woke up suddenly by this shouting of the people.'

The grammatical relation of *dìγí* vis-à-vis a following noun in example (a) is straightforward, but that of (b-c) requires some comments. *dìγí* in (b) represents NP of a PP whose postposition is *à* 'like,' which is incorporated into the verb prefix. Since DD like Q represents NP where the underlying N is deleted, it is assumed here that *dìγí* of *dìγí à* (PP) is coreferential to a deleted (underlying) noun. In (c) *dìγí* is coreferential to the following nominal which derives from *ts'ìcjīɬdj* 'someone/they keep(s) shouting' (see chapter 4 for further discussion). In either case, the demonstrative refers to a nominal.

ìγí (II, proximate) and *nùγū* (III, peripheral) are not marked for gender or number as exemplified by the following:

(67) a. ìγí ìsgíyá 'that (the) young man'
ìγí gàhɬá tónàʔ 'that (the) spruce bark'
ìγí ts'ō 'that (there) outside'
ìγí tɬíká 'those (the) dogs'

ìγí ītcí tō 'in that (the) bush = that tree among'
ìγí mís 'that (the) river bank'
b. nùγú ts'ìdòòtsá-ʔī 'that young man over there/ mentioned before'
nùγú tsìs k'á 'over there on that hill = that hill on'
nùγú dìt'óní 'that eagle over there'

Among the derived sets of DD, those affixed by *-t'íγí* 'right, very' are most frequently used in texts, for example,

(68) a. dìγí-t'íγí tsìs 'right this hill'
b. dìní-t'íγí ts'ósí ánìʔ-í 'this very crow mentioned before'
c. nùγú-t'íγí áàsts'ìnìʔ-í 'right that one mentioned before'
d. áát'íγáát'à (ìγí-t'íγí-át'à) nòhá zīsyín-í
that-it-is your-mother who-killed-her
'That is the one who killed your mother.'

Another point to be added here is that *nùγú,* a demonstrative, is different from *nùγá,* a locative adverbial. The passage (69) from a text shows the contrast between the two forms.

(69) a. *nùγú* dìt'óní ìtcí tō yūɬó-ó ts'īdìγáàtɬòʔī,
that eagle bush among that-is-brooding let's-run-to
ìsníh-là. ùγààt'íγí tɬ'áàts'ì ìnídzá-àsíná *nùγá*
he-said and-then next-day became there
gídìstɬ'á-là
they-ran-to
'"Let's run to that eagle that is brooding in the bush," he said. And then the following day they ran over there (to the bush).'

2.34.2. Semantic Contrasts of the Demonstrative Deictic Pronouns. The semantic distinctions made available by the triplet set are not always straightforward. Nonetheless, two observations can be made with certainty. First, the set of deictic terms is used to define both the spatial and temporal relationships without any formal distinction. For example, *dìní* (immediate) may refer to someone who is physically present near the speaker (and hearer) or to somebody being talked about at the narrative moment, whereas *nùγú* (peripheral) refers to someone who is away from the speaker (and hearer) or to someone mentioned in a story on an earlier occasion. The

exact nature of reference is more elusive for *ìγí* (proximate). It appears that it refers to someone/something already implied or understood between the speaker and hearer; that is, the reference carries no "new information." In the triplet set, the relationship is defined from the speech participants' (1p and 2p) point of view with respect to the topic (3p), whereas in the quadruplet/quintuplet set, it is defined from the speaker's (1p) point of view with respect to the hearer (2p) *and* the topic (3p).

2.35. Quantifiers.

Quantifiers are mostly numerals and number-based nominals. Other than the numerals the most common quantifiers include *tɬìk'í* 'one, some,' *tɬàát'áà* 'all, every' and *tɬòná* 'someone.' While these may not be derivable from the numerals synchronically, it is safe to assume that they are related diachronically to the numeral *tɬìk'āzá* 'one.' Quantifiers normally occur between DD (if it occurs) and N, but they may move to other positions or represent an NP without a following N (i.e., where the underlying N is deleted).

2.35.1. Numerals. All number terms are derivable from the following ten cardinals:

(70)	a.	tɬìk'āzá	'one'	f. gùstóní	'six'
	b.	ákíyī/íkíyī	'two'	g. tcìctc'ídí	'seven'
	c.	tóók'ī/táyk'í	'three'	h. tɬàcdīītc'í	'eight'
	d.	dīītc'íí	'four'	i. tɬìk'ūyāγáá	'nine'
	e.	gúùt'áá	'five'	j. gūnìsnání	'ten'

The next nine terms (up to 'nineteen') are derivable from the above cardinals plus *mītōō* 'add,' with or without minor morphophonemic adjustments, for example,

(71)	a.	tɬìk'á mītōō	'eleven'
	b.	ìkáá mītōō	'twelve'
	c.	tóók'ī mītōō	'thirteen'

The decimal terms from 'twenty' to 'a hundred' are derivable from the cardinals by suffixing *dīī*, again with minor phonological adjustments, for example,

(72)	a.	àkáá-dīī	'twenty'
	b.	tóó-dīī	'thirty'
	c.	dííc-dīī	'forty'
	d.	gūnìsnání-dīī	'a hundred'

There are two sets of derived terms, one adverbial with the suffix *-gù* 'times, in the manner of' (*àkíyí-gù gúnáh* 'he talks in two ways') and another nominal with suffix *-ná* 'persons.' The former is a constituent in VP and the latter is used exclusively in counting people. The following are a few examples of each set:

(73)	a.	tɬìk'ázá-gù	'once'	tɬìk'ázá dìná	'one person'
	b.	àkáá-gù/ àkíyí-gù	'twice'	àkí-ná ìsgáá-ká	'two young men'
	c.	tóó-gù	'three times'	tóó-ná dìná	'three persons'

tɬìk'āzá is the only numeral term which can be used in counting people without the suffix *-ná*. Again, the two sets of derivations require morphophonemic adjustments which are not as irregular as they might appear. This phonological process, as well as morphological characteristics of the numerals, are discussed in some detail in Cook (1971d).

2.35.2. Other Quantifiers. While the numerals are specified quantifiers, the other quantifiers are unspecified ones, as suggested by the following usage:

(74)	a.	tɬìk'í	cìlítc'à	
		one	my-animal	'one of my animals'
		tɬìk'í	dóní	
		some	food	'some food'
	b.	tɬàát'áà dìná		'all of the people'
		tɬàát'áà dóní		'all of the food'
	c.	tɬòná	dāts'ìsàák'āàná	ìst'úh
		one	opposite-ones	he-shoot
		'One of us shot the opposite ones.'		

These quantifiers are unspecified in the sense that they do not make reference to exact number or quantity. Notice also that the use of *tɬìk'í* and *tɬàát'áà* suggests no distinction between the count and mass nouns. With suffix *-ná* (which always refers to human), *tɬòná* is somewhat more specified than the others.

2.36. Quantifier Movement and Noun Deletion.

The typical syntactic order of the demonstrative, quantifier, and noun in NP is in that order (DD-Q-N) as exemplified by the following examples.

(75) a. dìní tɬìk'ázá xàlítsà
DD Q N 'this one old man'
b. dìní ts'ōōtsá
DD N 'this old lady'
c. tcīcts'īdí dóóní
Q N 'seven guns'

Aside from this typical order, other orders are observed as shown by examples in (76). These other orders are (DD)-N(D)-Q as in (76a-c) or Q-DD-N as in (76d). These variable orders can be explained by a rule of quantifier movement, which moves Q to the right of N or D (if D is present) or to the left of DD (if DD is present).

(76) a. ìst'ání tɬìk'í gūɣá ánádlà-là
bow another them-for he-made
N Q 'He made another bow for them.'
b. ts'ìdōōná àkíná-ìsīnā
N Q '(as for) the two boys'
c. dóní-ʔī tɬàát'áà xànāyíló-là
food-the all she-took-out-again
N Q
'She took out all the food again.'
d. tɬàát'áà dìyí dóní yītcídjī
Q DD N
'He will eat all the food.'

With the quantifier movement rule briefly outlined above, it is now safe to assume that the relative orders of nominal constituents within NP are otherwise fixed except for the relative clause (S), which may be moved out of the domain of NP (see chapter 4).

Other surface variations of NP occur because the underlying N is deleted. In (77) DD-Q represents NP, whereas Q alone represents NP in (78) and DD alone in (79). Where Q occurs with DD without N, Q is the head of the construction.

(77) a. dìní tɬìk'í-ìsīnā
this another-as-for
DD Q 'as for this person'
dìɣí tɬìk'àzá-ìsīnā
this one-as-for
DD Q 'as for this one (crow)'

(78) a. tɬìk'í-ìsīnā táɣánísxà-là
another-as-for she-threw-into-the-water
Q VP
'She threw the other one into the water.'
b. tɬàát'áà xágīnìdáh-à
all they-are-dancing-while
Q VP 'while all of them are dancing'
c. àkíná kátcínīyìtí-là
two they-peeped-out
Q VP 'Two persons peeped out.'

(79) a. dìní dìná-ɣìlà
this he-gets-well
DD VP 'This person gets well.'
b. dìní-ìsīnā ts'ìkúwá mágūnìlíná gūɣà nádìlát-là
this women who-are-pretty them-from he-takes-away
DD(subj) N(obj) VP
'This man takes pretty women away from them.'

The two examples in (79) require further comment. In (79a), *dìní* (DD) represents the subject NP, and *dìná* represents complement NP where the literal meaning of the sentence is 'this exists as person.' In the second example, the DD and N represent two different NP's, subject and object respectively.

All the examples are cited out of texts, and each deleted N is recoverable from the context. For this reason, it is assumed a rule of noun deletion applies to such sequences as DD-Q-N and Q-N, where N is the obligatory constituent of the underlying NP.

Alternatively, it may be considered that each of DD, Q, and N of NP is a subcategory of nouns which may represent NP independently or in combination with the others. This alternative may appear attractive, particularly for those derived quantifiers with suffix *-ná* (*àkíná* 'two persons,' *tɬòná* 'some, one'). This, however, would complicate the phrase

structure rules to the extent that they would not offer any plausible generalizations about the behaviour of the constituents involved. Furthermore, it could not account for the obvious relationships that obtain among different surface variations of NP, for example, DD-Q-N, DD-Q, DD, and others.

2.37. Determiner (D) and Delimiter (DL).

Two positional categories are postulated to account for the constituents that follow N within NP. These are D(eterminer) and delimiter (DL), which occur in that order following N. The nouns that D may follow do not include personal names, nor may it follow a personal pronoun (see table 1). It is necessary, therefore, to recognize a subcategory of N (e.g., personal names) aside from personal pronouns to describe the co-occurrence restrictions. It should be noted that personal names may co-occur with DD but not with D. The following are some NP's with D and/or DL.

(80) a.	síní	zó		
	Pro	DL		'I only'
b.	dìní	k'òt'íní-ʔī	zó	
	DD	N-D	DL	'this man only'
c.	dìγí-ká	àkíyí-ká	zó	
	DD	Q	DL	'these two (horses) only'

It may be recalled that *djú* 'also, likewise' also occurs where DL does; however, it is not treated as a constituent within NP, since it enjoys a much wider range of distribution.

2.37.1. Determiner. This category is represented by one and only one form -ʔī. For want of a better term, this form is called a "determiner." It is probably a misnomer, and a better term might be "topic marker." Assuming that -ʔī contrasts with zero (Ø), these are comparable to Korean *nun* vs. *ka* and Japanese *wa* vs. *ga*. The first of the two forms in each language is widely known as "topic marker." This comparison is based on the following observation.

In texts, if a recurring NP is coreferential to an earlier occurrence, the NP is "tagged" with D from the second time onward. An NP which occurs for the first time in a discourse may be similarly tagged only if the NP is contrasted with another NP which actually occurs in the same discourse or is implied by the context. Consider the following examples quoted out of a text:

(81) a.	ìsts'ōyá	yísʔí,	sìγá-ʔī	dú γìsʔí
	my-wife	I-saw	my-son-D	not I-saw
	'I saw my wife, but I did not see my son.'			
b.	ìtsìts'ínà-ʔī	k'ūs-ná-k'àʔ	kúγīγáʔàz-là	
	head-bone-D	neck-eye-place	he-looked-in-M	
	'As for the skull, he looked in the neck-eye area/He looked in the neck and eye area of the skull.'			
c.	dìγí	mīts'īdà-ʔī	tsìst'ógústìyī	mīk'à sīló-là
	this	his-blanket-D	swallow	it-on-there-were
	'As for his blanket, swallows were (painted) on it.'			

In (a), *sìγá* 'my son' is marked by D in contradistinction to *ìsts'ōyá* 'my wife,' although the former has not been referred to in the context. The other two sentences above are good examples of topicalization. In (b), the first NP is marked by D as topic. This NP is taken out of *ìtsìts'ínà k'ūs-ná-k'àʔ* 'the skull's neck-eye area,' a compound-like possessive construction which is the object of the sentence. In other words, the possessor is "topicalized" and moved out of the possessive NP. In (c) the first NP is moved out of the PP whose postposition *k'à* 'on' is prefixed by pronominal prefix *mi-*. The second NP 'swallow' is the subject, but the order is inverted because of the topicalized NP which originates from a PP. The following passage from a text further illustrates the function of D.

(82) a.	átc'á	gùstónà	mìsgáàká-lā,		dìní ts'òòtsà-ʔī.
	there-were	six	boys		this old-lady-D
	ìtsáhà-ʔī ìsīnā	γáh	ts'ó	yìh	nànídál-lā
	oldest-D	home	outside	4p-with	she-arrived
	'It turned out that the old lady had six boys. She arrived with it at the outside of the oldest one's home.'				

In the first sentence, the NP marked by D is "extraposed" because of *átc'á,* which always occurs at the beginning of a sentence.[14] The NP is tagged in this way because it is a coreferential to earlier occurrence(s) in the text. In the second sentence, the first NP is marked by D, although it has never occurred in the context, because 'the oldest' is contrasted with the rest of the boys (i.e., 'six boys' implies the existence of 'the oldest'). 'The oldest' is now introduced by *ìsíná* as the main character of the discourse; hence it is moved out of the possessive construction *ìtsáhà γáh ts'ó* 'the oldest's home's outside' ('outside of the oldest one's home'). It can also be explained by topicalization.

As mentioned at the outset of this subsection, D marks coreferentiality. This function of D compares well with the so-called "switch reference" (Jacobsen 1967), whose primary function is to avoid ambiguity by marking coreference. While the switch reference in Hokan-Coahultecan, Uto-Aztecan, and Maidu, among others, is a characteristic of VP, D in Sarcee with a similar function is a characteristic of NP.

2.37.2. Delimiter. This is the last "optional" constituent of NP represented by *zó*, 'only,' and has a fixed syntactic position. This is in a sense a nominal enclitic which occurs immediately after a noun of any function, as illustrated by the following examples:

(83) a. dìná yídùwàh-dī gùwā-àdà *zó* kánádìɣíttà?ī
people all-gone-then thereafter only you-come-out
'*Only* when all the people are gone, come out of there.'

b. dímòyā *zó* nànínāc-gù-là
edge only you-move-M—M
'*Only* along the edge you should move.'

c. síní *zó* hāsìsá
'I *only* (no one else) chased him.'

d. ùwā dìyí-tíɣí xàt'áá k'á *zó* ìsīnā
and this-very kind on only
'and *only* on this kind'

e. ìsgááká ūwà k'òt'únáɣá *zó* yíttādìttc
young-men and men only they-dance-with-it
'*Only* young men and men (middle-aged) dance with it.'

f. nīnīɣá-?ī díítc'ī-?ī *zó* ?àsttá
bear-the four-the only I-ran-against
'I ran against *only* the four bears.'

In the first two examples, *zó* occurs right after a nominal particle of locative function. In (c) it follows a pronoun, and in (d) it is preceded by a postposition. These examples suggest that there is little difference, at least at the morphological level, between nouns, postpositions and particles. In (e) it occurs after conjoined NP's, and finally in (f) it occurs after a numeral that is moved from its usual pre-noun position. The internal structures of NP in the last two examples should be explained by transformations, but the position of *zó* is intact. If postpositions are treated as nouns, constructions like *xàt'áá k'á* in (d) should be treated as compounds. Then the delimiter should be treated as a true postposition.

2.38. tsìná.

This is the last form to be dealt with of the constituents of NP. Because of the peculiar syntactic behaviour of this form, it is impossible to assign it to any of the positional categories that have been discussed. Its semantic features are just as peculiar as its syntactic ones. It is obviously a human noun as it is used in (84a), but there are no instances in which *tsìná* alone represents NP as any other ordinary human noun. It functions as a title (e.g., Mr., Mrs.) as in (84b), but the connotations it imparts on the masculine and feminine nouns are different. It is also used with a non-human but animate noun when it is personified, as in (84c). A proper description of this form will require a further subclassification of N.

(84) a. dìní tsìná 'this fellow' (slightly insulting)

b. dìkōxàlí tsìná 'white fellow' c.f. dìkōxàlí 'white man'
ts'ōōtsá tsìná 'dear old woman'

c. tłì-yáná tsìná '(Mrs.) old dog' (personified)
dīīkóyí tsìná '(Mr.) coyote' (personified)

3

Conjoined Sentences

3.00. INTRODUCTION.

The basic sentence patterns, the two major syntactic constituents (NP, VP), and PP are examined in the preceding chapter. Although the characteristics of PP are discussed in chapters 2 and 9, no attempt is made here to provide an exhaustive list of postpositions (but see 9.50). The remaining categories of words and particles (both free and bound) are essentially of two functional types, the conjunctions and complementizers. Of these, the latter is dealt with in the next chapter since it involves embedding processes in NP and VP.

3.10. TYPES OF CONJUNCTION.

Structurally there are three types of conjunctions: (i) those which are appended to the preceding clause, (ii) those which occur as a free form before a clause, and (iii) those which occur in either form, for example,

(1) a. -ìt'ìγì 'then'
dìná-ʔí xánààyál-lā-*àtʔγī* kūγíyál-là
man-the he-walked-down-then he-entered
'Having walked down the hill, the man entered the house.'

b. ùwā/ìwā[1] 'and'
dìná dìdlīnaʔ sáγà ts'ìnístíh, *ìwā* gūstóná djú nūγú
man he-is-alive me-to one-gave and six too there
tc'áàtcí tó sáγà ts'íní-là
poplar among me-to one-gave
'The man who is alive was given to me, and those six men over there in the poplar trees were also given to me.'

c. ìgùɬí 'in spite of, even if, however'
tótc'ìj-là, *ìgùɬí* dú ts'ází-là
it-jumped however no one-woke
'It jumped, but he did not wake up.'
nídīsnìʔ-*ìgùɬí,* kánādìγíígád-ìgùɬ
I-call-you-even you-come-out-not
'Even if I call you, you should not come out.'

Of the three types, the first is the best represented, with about half a dozen forms recorded in texts (e.g., *-ínídzà* 'as, when,' *-īyíst'à*ʔ 'as soon as,' *-ì* 'while'). Each of the other two types occur twice, including those cited above (e.g., *tc'àγáà* 'because,' (-)*ìdà*ʔ 'if, when, after,' (-)*ìgústíγà*ʔ 'just then'). *tc'àγáà* is different structurally from the rest for reasons to be discussed shortly.

Functionally, there is one coordinating conjunction and its derivatives; the rest are subordinating conjunctions.

3.20. SEMANTIC AND FUNCTIONAL PROPERTIES OF CONJUNCTIONS.

The semantic and functional characteristics of conjunctions are straightforward in some cases but not so transparent in others. I shall attempt in this section to describe some salient features with examples taken out of texts, followed by an alternative analysis for some selected cases in the subsequent section.

3.21. ùwā vs. -ìt'ìγī.

Most of the conjunctions specify temporal relationships of two or more events. As a coordinate conjunction, *ùwā* joins two clauses of equal status, each being able to represent an independent sentence. The temporal relationship of the events described by the clauses so conjoined is "concurrent." Compare the example cited in (2a) with those in (2b-c):

(2) a. tɬòná dātsìsàák'āàná ìst'úh gìnílà, *ùwā* tɬòná
one backward-ones he-shoots they-say, and one
nāànīsáàk'áàná gìnílà
forward-ones they-say
'"One will shoot those in the back and the other those in the front," they say.'

b. dāɣāh kúnáyìyà-lā-*àt'īɣī,* dìts'òyá ʔáàsnílā-à...
own-home he-entered-then own-wife he-said-to
'He went into his tent, and then he said to his wife....'

c. *ùwā* nàts'ínáh-*ìt'īɣī,* dímòyà zó nānìnác-gù-là ɣìsní-la,
now they-move-then edge only you-move he-said
ùwā-àt'īɣī nádìiyá-là
and-then he-went-back
'"Now as they move camp, you move along the edge only (away from the rest)," he said, and then he went back.'

In (a) two clauses are conjoined by *ùwā,* in (b) two are conjoined by *-ìt'īɣī,* whereas in (c) a sentence is introduced by *ùwā* (conjoining it to the preceding sentence); the three clauses are conjoined by *-ìt'īɣī* and *ùwā-āt'īɣī.* Apparently three different conjunctions are used in (c), but they are related functionally as well as structurally. *ùwā* and *-ìt'īɣī* are in complementary distribution; the former occurs as a free form before a clause it conjoins, while the latter is affixed after a clause it conjoins. The third, which is the combination of *ùwā* and *ìt'īɣī,* is mutually exclusive structurally with, but semantically identical to, *-ìt'īɣī.* One occurs as a free form before a clause and the other is suffixed to a clause. Both indicate the "sequential" temporal relationship of two events; that is, the events described by the two clauses conjoined by either of the two conjunctions follow one after another.

It should also be pointed out that as a conjunction, *-ìt'īɣī* is lexically related to *-ìt'īɣī,* as in *dàà-t'īɣī* 'right here' (cf. *dàà* 'here, this place') and *ìsúw-zúnà-àt'īɣī* 'my grandmother's dried meat (it really is),' and so forth.

Functionally, however, there are important differences between *ùwā* and *-ìt'īɣī.* The question arises whether there is a true coordinate conjunction in the sense comparable to *and* (English) and *et* (French). As shown above, *ùwā* conjoins two clauses, but it is seldom used in conjoining NP's or any other constituents. Other than clauses in Sapir's texts or mine, there are hardly any instances of *ùwā* conjoining constituents. Nevertheless a few examples are readily noted in Goddard's text, in which *ìwā* conjoins NP's:

(3) a. tɬàát'áà ìsgāāká *ìwā* k'àt'únáyá zó yíɬtādìɬtc
Q N N DL VP
all young-men *and* men only with-it-they-dance
'All young men and men only dance.'

b. nīlítc'áká-ɣáh-ʔī *ìwá* nìnìná-ɣáh àgúdjà
your-horses-tent-D and your-tent they-were
'They were your horses' tent and your tent.'

ùwā is rarely used in conjoining NP's; more commonly, NP's are conjoined without any conjunction at all. In the first example below, two nouns are conjoined; in the second, three are. In neither case is a formal device used to conjoin the nouns.

(4) a. dítòò dóó-ʔī ínáyàání-là
own-father own-mother-D she-told
'She told her father *and* mother.'

b. ìwā, ìstɬí gútsìs dóóní ìcīctcùd, gīní
and horse scalp gun I-capture, they-say
'And "I captured horses, scalps, *and* guns," they say.'

Another common syntactic device used in conjoining two NP's is the postpositional construction with postposition *ìh* and *ílà.*[2] It is particularly interesting to compare (4a) with (5a):

(5) a. dítòò dóó *ìhílà* áàsní-là
'She told her father and mother.'
cf. ìst'ání-*ìhílà* ts'īzìsɣí-là
arrow with one-killed-him
'With an arrow they killed him.'

b. tsò-mīzālāá dìstɬóyàʔ *ìhílà* dìmóná ááɣíìtcù-lā
Beaver-Collar own-friend with war-party he-joined
'Beaver-Collar and his friend joined the war-party' =
'Beaver-Collar joined the war party with his friend.'

Using the postpositional construction as a syntactic device to conjoin NP's must be a relatively recent development. Be that as it may, it raises an interesting question regarding the structural identity of conjunctions, which is further explored elsewhere (see 3.20).

Returning to the syntactic characteristics of *ùwā,* consider the following examples:

(6) ìsts'ōyá yīs?í ùwā sīγá
my-wife I-saw and my-son
'I saw my wife and son.'

How the above conjoined structure is related to the other two presented in (3) and (4) is not immediately clear. It is obvious, however, that the VP of the second clause, identical to that of the first, is deleted. Examples (4a) and (6) probably have the same underlying constituent structure (i.e., NP VP *ùwá* NP VP), while the difference between the two surface structures is accountable by an obligatory rule that deletes the identical VP in the second clause (as in [6], i.e., NP VP *ùwá* NP VP ⟶ NP VP *ùwá* NP), along with an optional movement rule (ordered to follow the deletion rule), that moves the NP of the second clause to the left of the VP of the first clause as in (4a) where the conjunction may also be deleted, that is, NP VP *ùwá* NP VP ⟶ NP VP *ùwá* NP (via deletion) ⟶NP (*ùwá*) NP VP (via movement). The surface structure (3a) suggests that the conjuncton is deleted by an optional rule.

3.22. *Subordinating Conjunction I.*

The three conjunctions *-ínídzà?* 'when/while,' *-īyíst'à?* 'as soon as,' (*i*) *gústíγà?* 'just then,' are similar in marking temporal relationships of two conjoined clauses. These contrast semantically with *-ìt'īγī* in that the latter focuses on how two events converge on a given point in time. With this distinction in mind, examine the following three examples.

(7) a. yīk'áyìs-*ínídzà*-àsīnā mílá tó dàyīyíkò-là
'he breaks-it-*while* his-finger among it-went-in
'While (when) he was trying to break it, it went into his fingers.'
b. tōtł'á níyā-*āyíst'à?* nínātsíìtł'á-là
a-little-ways he-went-as-soon-as she-jumped-up-and-ran
'*As soon as* he went a little ways, she jumped up and went again.
c. dìná γídùwà-*gūstīγà?* dītłíhà-?ī ídīní-lā
people one-gone-*just-then* own-dog-D she-called
'She called her dog *just when* people had gone (out of sight).'

While *-ìt'īγī* marks *sequences* of two events which have no intrinsic relationship to each other, the events marked by one of the above three conjunctions have a closer relationship (e.g., cause-effect, expectation, implication, etc.). Furthermore, while *-ìt'īγī* does not indicate the *amount* of time involved between two events, the above three do. Probably *-ínídzà?* indicates the longest time (note the gloss 'while'), *-īyíst'à* the shortest (almost concurrent), and (i)*gūstīγà?* the medium length.

Of these three conjunctions, the last may also occur as a free form not affixed to a subordinate clause. This conjunction, along with a few others, is analyzed from a different point of view in another section (3.30).

3.23. *Subordinating Conjunction II.*

This conjunction, *ìdà?*/-(*i*)*dà?* 'if (subjunctive), when, after,' is the only one that may introduce a subjunctive clause. The affixed form sometimes drops the initial vowel if the preceding verb ends in a vowel. The following passage contains both affixed and free forms of the conjunction:

(8) ácdjà-*dà?* gùlí-dà? dìyí sīts'īdà? āγādìsγá-à sìk'á yìyīstsūs.
I-happen-*if* it-is-*if* this my-robe turned me-on you-spread
ìdà? tsìdláγà ?átłàgūdīnìγístòn
after tent-flap you-close
'If something should happen to me, spread my robe which is turned inside out over me. After that, close the tent-flaps.'

This passage consists of two sentences. The first has two subjunctive clauses conjoined by -(*i*)*dà?* to the main clause. The subject of the first of the two clauses is *s-* (1sg) which is assimilated to *dj,* and the literal meaning of the clause is 'if I happen to be so and so.' The subject of the second is third person singular (morphologically unmarked), and the clause means 'if it is so.' The second sentence is introduced by *ìdà?* instead of *ùwā* or *ùwāát'īγī*. The only explanation for this is that the conjunction relates two *hypothetical* instead of actual (or highly probable) events. Note also that the structural and functional contrast between *-ìt'īγī* and *ùwāát'īγī* is equal to that between *-ìdà?* and *?ìdà?*. The first pair is used to relate actual and highly probable events; the latter relates hypothetical and unlikely events.

3.24. *Subordinating Conjunctions III.*

The conjunctions *ìgùtł'* 'in spite of,' and *tc'ùγáà* 'because,' are different from the others semantically, since they refer to cause-and-effect relationships rather than to temporal ones. The cause-and-effect relationship may

be either positive (i.e., as expected) or negative (i.e., contrary to what is expected).

In (1c) are presented two examples of *ìgùɬí* which conjoin two clauses describing events of a negative cause-effect relationship. This conjunction may be used as a free form or as an enclitic affixed to a subordinate clause. As the second example in (1c) shows, *ìgùɬí* is apparently related lexically to a modal *-ìgùɬ* (prohibitive or negative command).[3] In the first examples, 'it jumped, but he did not wake up,' the textual context shows that the subject of the second clause was expected to wake up as soon as 'it' jumped, but he did not. In the second example, the speaker is talking to a dog which is normally expected to come to the owner (speaker) when called, but the dog is advised not to.

The "positive" counterpart of *ìgùɬí* is *tc'àγáà*. It does not have any enclitic form although postposition *-γà* 'for' may be related to this conjunction (see 3.30). Consider the following examples:

(9) a. *tc'àγáà* dú sīts'ì nazīts'ì ʔictcíj
because not me-to you-speak I-eat-it
'Because you do not speak to me, I shall eat it.'

b. tɬòò, tc'àγáà náγáàst'à . . .
son because I-pity-you
'Son, because I pity you. . . .'

The unique structural characteristic of this conjunction is that a dependent (subordinate) clause rather than a main clause immediately follows this conjunction. In the case of the rest of the conjunctions, either free or bound, it is always the main clause that follows the conjunction.

3.25. *Conjunction IV.*

The unmarked *-ì* is semantically almost empty (i.e., unmarked) and conjoins loosely related clauses. It marks a temporal relationship of a much wider span (duration), either concurrent or sequential, as in (7a-c); or it conjoins a quoted speech with the main clause, as in (7d-e):

(10) a. yīyáɬ-lā-*à* xàní zìsyí-là
he-was-walking-while buffalo he-killed
'While he was walking he killed a buffalo. = He was walking, then killed a buffalo.'

b. nāʔóódìnìtcá-*à* yīts'ì dìyá-là
he-was-sneaking-while him-to he-went
'Walking stealthily he went to him.'

c. ùwāát'íyí ístɬíká k'à ts'ídīsmò-lā, dú
and horses on one-went-on-war-path not
ts'īsdó-*ò*
one-stayed-while
'And they set out on the warpath riding horses, not anyone staying home.'

d. dìní ts'ìká-ʔī ání-là-*à* nàsíγásnìʔ. . .
this woman-D he-says-*i* offer-me. . .
'This woman says "he says, 'Offer me'. . . "'

e. dìcìtɬ'áká áàsní-lā-*à* ísts'òyá ká dáàdàɬ
own-brothers he-tell-*i* my-wife for we-go
'He told his brothers "Let's go (to look) for my wife."'

The phonological shape of the conjunction is *ì*, which completely assimilates to the immediately preceding vowel. In these examples, it alternates with *à* or *ò*. The subordinate clause affixed by a conjunction normally precedes the main clause. Example (7c) is an exception to this pattern. This conjunction, lacking semantic content, is comparable to the English intonation contour "sustain." (Trager and Smith 1951).

3.26. *Subordinating Conjunction V.*

The form *gù* in a subordinate clause is probably the most loaded and versatile morpheme of all subordinating conjunctions. Its lexical and grammatical features are discussed elsewhere in this book. The following are a few examples that illustrate the point:

(11) a. ìsgìyá-*gù* nàgūdáátɬōɬ-là
young-man he-jumped-down
'As (in the manner of) a young man he jumped down.'

b. ts'ìká γáʔí-là yīyáɬ-*gù*
woman she-saw-him he-is-walking
'The woman saw him, the way he walks.'

c. náàdí náts'ìnìitàs-dí gúdídúɬ-*gù* kù tɬìts'ìdīγísūz-là
yonder one-pitched-tent-N oblong fire one-made-fire
'Over there where they pitched tents in (an) oblong manner, they made a fire.'

It appears that *gù* may be affixed to any form class to derive another set of lexical class of different function, or that it may be appended to a construction relating it to another constituent. Although not intended to provide a thorough lexical and syntactic analysis of *gù,* a few examples are shown to demonstrate its function in subordinate clauses.

(12) a. tɬìk'í xàɣíyí-là ìcxùɬ-*gù*
one she-went-out she-scrapes
'One of them went out to scrape it (hide).'

b. mīts'ì kànídàɬ-*gù* ts'ìdáátsà-ʔà ìsdínì
him-to you-lie girl-it-is you-say
'To tell him a lie, say "it's a girl" to him.'

c. nádīcícá-*gù* ɣīsʔí
I-go-home I-saw-him
'When I went home, I saw him.'

In the above examples *gù* is appended to the subordinate clause. As shown in other examples, *gù* may also be affixed, just as any other modal enclitic, to the verb of a main clause. In the first two examples, *gù* is a modal in that it refers to the opinion of the speaker (cf. *tɬàts'ɪ̄ɣánáɬ-gù* 'they should move camps.') In relating a sequential temporal relationship of the two clauses, *gù* in (c) is comparable to *ìdàʔ*. The former is used in relating two events that have actually happened (past), and the latter, to those that have not. Of course, one could treat it as two or more separate (homophonous) morphemes. For a semantic analysis it may be desirable, but little may be gained in a grammatical analysis; it would be akin to treating *of* as two dozen different morphemes in English grammar. In short, *gù* may occur in a subordinate clause which may precede or follow the main clause.

3.30. CONJOINING VS. NOMINALIZATION.

This section is intended to present an alternative analysis of the conjoined clauses discussed in the preceding sections. There is some evidence that the conjoined clauses are structurally identical or similar to NP or PP. Other evidence suggests that a postpositional construction functions the same way as a conjoined clause. Evidence of these two types and the opposing arguments they support converge to demonstrate an alternative analysis in which underlying conjoined sentences, appearing as NP's or PP's on the surface, undergo the process of nominalization.

3.31. *Conjunction vs. Nominal Enclitic or Postposition.*

One of the structural aspects that suggests an alternative analysis is that most of the subordinate conjunctions discussed above also occur immediately following a noun, in the same way that a constituent in NP or a postposition may follow a noun without a copied pronoun. This distribution of the forms in question suggests that they are nominal particles or postpositions that are encliticized to the nominalized form of an underlying S. The case for (ì)*t'ɪ̄ɣī* is commented on in 2.10. Examples for the others are as follows:

(13) a. *ìdàʔ*
àkíyí dzínís-*ìdàʔ* gúts'ìs dìcóh
two day-later Calgary I-go (Calgary = elbow)
'I'll go to Calgary two days later.'
cf. àkíyí dzīnīs-*gù* gūts'ìs dìcìcō
'I went to Calgary two days ago.'

b. *ìgùɬí*
tɬíká-*ìgùɬí* ìsīnā táɣásdìɬ-í-ká náɣààʔùɬ-là
dogs even water-to-thrown-ones they-swam-across
'Even the dogs that were thrown into the water swam across.'

c. *ìgūstīɣā*
díítc'í-*ìgùstīɣā*-àsīnā
four right-there
'right at the fourth time'
ìká-dí *gústíɣàʔ*
two-place right-there
'at two places'

d. *ínídzàʔ*
xánìdà-*ánídzà*-àsīnā
a-while-when
'after a while'

Functionally, the four forms in these examples are anything but conjunctions; neither clauses nor phrases are conjoined by the forms. None of them is appended to VP, but each is appended to a nominal form.

Particularly interesting is *ìgùɬí,* which occurs in the subject NP of (13b). This NP has a relative clause (*táɣásdìɬ-í-ká* 'the ones that are thrown into the water') which normally occurs immediately following the head noun (*tɬíká* 'dogs' in this case). The syntactic position of *ìgúɬí* in (13b) is identical

to that of the delimiter (*zó* 'only'). In this regard, it is not unreasonable to view the 'conjoined clause' of the second example in (1c), that is, *nídīsnì?-ìgùłí* 'even if I call you,' as a PP whose NP is derived from an underlying sentence by way of nominalization. Such alternate literal translations as 'despite the fact that I call you' and 'despite the fact that it jumped' for the relevant parts in the two sentences in (1c) are suggestive of the nominalization in question.

The form known as "relative" is *-í* (usually with a high tone, but other tones are occasionally found). It may be that this vocalic element deletes before the initial vowel *i,* which is found in every one of the above conjunctions.

To recapitulate, while it cannot be determined whether these forms are nominal particles (such as *zó*) or postpositions, what occurs immediately preceding those forms appears structurally to be nominal rather than verbal.

3.32. Postpositions as Conjunctions.

The first postposition to be discussed is (?)*ih* (instrumental/comitative). One morphological characteristic of the postposition is that it inflects with a set of pronominal prefixes (i.e., copied pronouns), for example, *sìh* 'with me,' *mìh* 'with him,' *sīts'ī?* 'to me,' *mīts'ī?* 'to him,' and so on. Syntactically, PP is a typical constituent in VP. *ìh,* however, differs from the rest of the postpositions in more than one way, since it is semantically loaded and syntactically versatile.

The instrumental and comitative functions of *ìh* as a constituent in VP are illustrated by the following two examples:

(14) a. *áγúłtì?* *ìhílà* *míts'ì?* *tótc'ídìnìj-là*
scraper with him-to she-signalled
'With the scraper she signalled to him.'

b. *gùsdīná-à* *ìcxùłdj-í* *ìhílà*
I'm-anxious I-scrape-N-with
'I'm busy with scraping it/I'm too busy with scraping to be bothered.'

In (a) there are two PP's, *áγúłtì?* *ìhílà* 'with the scraper' and *míts'ì?* 'to him,' which modify the verb *tótc'ídìnìj-là* 'she signalled.' There is no question about the instrumental function of the PP in this VP. In (b) the NP that precedes the postposition contains a relative clause. Again there is no question about the comitative function of the PP that modifies the verb *gùsdīná-à*

'I'm busy.'[4] The PP in (14b) has been moved to the right of the verb from its usual pre-verbal position. Compare now (14b), in which the function of PP is comitative, with (15a-b) below.

(15) a. *álíní* *nìdūwàh-í-ìhílà* *ìyí* *gàh-lá* *tónà?* *nīst'às*
meat all-gone-N-with this spruce bark you-cook
'Cook this spruce bark since/while meat is all gone.'

b. *tcà, ínīstcìłdj-í-ìhílà*
no, I'm limping-N-with
'No (I won't), since I am limping.'

c. *áà... ìsnì?-í-ìhílà* *xáyìłtół-là*
yes she-says-N-with she-rushed-out
'Saying "yes...," she rushed out.'

The comitative function of the PP in the first two examples is not so apparent, primarily because of the semantic range of the postposition which the English word *with* cannot accommodate. It is perhaps easier to reflect the grammatical function and meaning of the postposition in a "pidgin" translation of (15a), such as 'cook that spruce bark with the meat all gone.' In (b) the verb of the main clause is deleted, but the grammatical function of the PP is apparent as another pidgin translation, such as 'no, I won't with me limping,' indicates. The last example above best exemplifies the function of the PP in question, which relates the two concomitant actions, that is, the subject's saying "yes..." and her rushing out. This relationship is not so apparent in the other two examples, perhaps, because what is described by the embedded sentence in NP of PP makes reference to a "state" rather than an "action." Structurally, the construction in question is undoubtedly a PP, but semantically it is very much like a conjunction. Recall that the conjunctions discussed in the preceding section relate temporal relations of two events described in the conjoined clauses. The postposition *ìh* does exactly that, that is, relate two concomitant events or states when the NP of PP contains a relative clause as in the examples cited in (15). Probably this has led the particular postposition to develop a conjunctive function.

A much more striking characteristic of *ìh* is its "apparent" function as a coordinate conjunction, as discussed along with examples cited in (5). For further discussion, (5b) and other examples are cited below.

(16) a. *dítò* *dóó* *ìhílà* *áàní-là-à*
own-father own-mother with she-told
'She told her (own) father and mother.'
cf. *dítò dóó-?ī ínà?àání-là* (same as above)

b. tcágúyáyá k'ìyìdjí ìstɬá ká-*àhílà* kàdīlá-là
weasel coat legging shoe-with he-brought-out
'He brought out weasel coats, leggings, and shoes.'

c. ìsts'òyá sìγá-*àhílà* ákó dìcícó-ó?à
my-wife my-son-with for I-came
'I have come after my wife and son.'

d. ts'òòtsā-?ī dīsgāàká-*àhílà* dìná gīlí-là
old-woman-D own-children-with person they-were
'The old woman and her children survived.'

(17) a. ìlk'ōōtsìí máàtòn-lá dīgīts'òyáká-*àhílà*
Bull-Head he-joined own-wives-with
'Bull-Head joined the party with their wives.'

b. dísdādzà-?í *ìhílà* dìstsì-là
own-sister-D with she-charged
'She charged her (younger) sister.'

The crucial problem here is the relationship of the two nouns preceding *ìhílà*. If the two sentences in (16a) are indeed synonymous, as the glosses indicate, the two nouns in the first sentence of (16a) may be conjoined in a PP, just as the two nouns are (without any overt conjunction) in the second sentence of (16a). (16b) is remarkable in that *ìhílá* is used exactly in the same way as English *and* is used to conjoin more than two nouns. Furthermore, the verb stem *-lá* 'to handle plural objects' clearly suggests the plurality of the object NP. Even more remarkable is (16c), in which at first sight there seem to be two postpositions, *ìh* and kó.[5] There is, however, only one. The PP has the structure of *NP Pro-P* where the NP is represented by two nouns *ìsts'òyá* 'my wife' and *sìγá* 'my son' which are conjoined by *ìhílà*. Such data as (16c) provide unequivocal evidence for the conjunctive function of *ìh*.

Internal as well as comparative evidence suggests that the conjunctive use of *ìh* is a relatively new development, creating structural homonymy and ambiguity. For example, (17a) would have the same surface structure as (16a) had the PP not been "extraposed." In (16a) *dóó?ìhílà* does not constitute a PP; hence it cannot be extraposed, whereas *dīgīts'òyákà-àhílà* is a PP which has been extraposed from the normal pre-verbal position. It may be speculated that the extraposition of the PP has resulted from the development of ambiguity.

This analysis of *ìhílà* still leaves such sentences as (17b) unexplained. The function of *ìhílà* in (17b) is neither comitative, instrumental, nor conjunctive. Although a comprehensive analysis of the construction *NP-ìhílà* is not intended here, the two sets of data presented above, especially (16a-c), confirm the conjunctive function of *ìhílà*.

The last and most important point to be mentioned with respect to this postposition is that it may also be used exactly in the same way as *ùwā* in conjoining clauses. When it is used as a conjunction introducing a new sentence, it is affixed to *mi-* (3sg specified), that is, *mìh(ílà)*. In Goddard's texts, it occurs either as *mìɬ* or *mìɬílà*. Some details follow the examples below.

(18) a. tcúwà *mìh* nánìstɬús-í nínádìstɬò
wait it-with I-sew-N I-go-get
'Wait! and I'll go get what I was sewing.'

b. táágù γàtc'ádìnìj-là *mìh* díítc'íts'ì
three-times he-was-to-hit-her it-with fourth-time
ìgūstīγà? yìsxàɬ-là
just then he-hit-her
'He almost hit her three times. After that (then) he hit her right at the fourth time.'

c. dìγí sìmázà? àkágù ìstɬíká *mìɬ* ìstcùd
this my-knife twice horses it-with I-captured
'With this knife of mine, I captured horses twice.'

Although a sentence like the third above is very rare, it is interesting because of the "split" PP. *dìγí sìmázà* 'my knife' at the beginning of the sentence, together with the postposition with the pronominal prefix (i.e., copied pronoun) *mìɬ* immediately before the verb constitutes a PP. The copied pronoun is coreferential to the underlying NP which happens to be separated in this particular sentence by two other constituents, *àkágù* 'twice' and *ìstɬíká* 'horses' (object). To understand the function of *mìh* in the other two sentences above the coreferentiality of the copied pronoun is important here. Recall that a postposition with a copied pronoun may represent a PP in the absence of the underlying (coreferential) NP. There is no such NP either in (a) or (b) in (18), but *mi-* of *mìh* refers to 'waiting' in (a) and to the fact that 'he almost hit her three times' in (b). This type of pronominal reference is well known in English grammar; cf. 'He made me wait all day, but *it* didn't bother me.' There is no overt NP to which *it* refers, just as there is no underlying NP with which *mi-* is coreferential.

Another postposition used like *ìh* is *ì*, which is affixed to an unspecified pronominal prefix *gu-* in the following example:

(19) a. xánìdá-àsīnā nítàh-ì-t'íyí nágùdìdìgó-òt'īyī
a-while-after she-goes-to-bed-then dawn-breaks-then
xānát'īdīyá-gù, *gú?ì* tc'ájīj-là
one-goes-out-like that-on she-wakes
'After a while she would go to bed, then the dawn would break, and then it was as if someone would go out of the tent; *thereupon* (on that feeling) she would wake up.'

The impersonal pronominal prefix *gu-* (which makes reference to a point in time or place) of *gú?ì* contrasts with the personal pronominal prefix *mi-*. Again there is no overt NP coreferential to *gu-* within the sentence, but clearly the pronominal prefix refers to her feeling that 'someone would go out of the tent.'

The last two postpositions to be considered in this section are *yìsì?* 'before' and *γà* 'for (reasons),' as used in the following sentences:

(20) a. nītàh-á yìsì? tɬààztsúw ìhílá ātɬácīnìiz-là
she-sleeps-N before yellow-paint with she-rubbed-together
'Before going to bed, she rubbed her hands together with yellow paint.'
b. ìsdádjà-á-γà-àsīnā nìstí-là
he-is-tired-N-for he-lay-down
'Because he was tired he lay down to sleep.'

γà is frequently affixed to a pronominal prefix, but there is no record of *yìsì?* being affixed to a pronominal prefix. But the relativizer (N), along with forms like *míts'ìsi?* 'toward him' (cf. *mísì?* 'to him') and *mítīγā* 'under it,' suggests that *yìsì?* is a compound postposition.

The above discussion on PP demonstrates that the function of a postposition is similar to that of a conjunction. There is little structural difference between the postpositional construction and the subordinate clause construction discussed in the preceding section. The only unquestionable difference between the subordinate conjunctions presented in 3.20 and those postpositional constructions discussed in this section is that there are no recorded examples of "conjunctions" prefixed by pronominal prefixes. Although no conclusion may be drawn on the status of the so-called conjunctions, a few hypotheses are presented by way of a summary.

First, the so-called subordinate conjunctions may be better treated as subcategories of postpositions. In any case, conjoining is not a major syntactic device in Sarcee. Second, there is no appreciable structural difference

between a conjunction and a postposition. This means that underlying sentences are mapped onto the surface structures through postpostitional phrases or conjoined clauses, and a semantically based grammar may not need to distinguish these two categories in underlying representations. Third, conjunctions may have developed from postpositions (which is a subcategory of nouns), as the use of *ìh* suggests. It may not be accidental for Chipewyan to have *t'á* which is virtually identical to Sarcee *ìh* in its form class and function. Although they are not cognates, their historical developments appear to have been parallel. Finally, that the conjunctions occur after a nominal (just as postpositions do) as in (13) suggests that underlying conjoined sentences undergo nominalization; that is, only the predicate verb of the main clause remains as a verb (in form) on the surface structure.

4

Complex Sentences

4.00. INTRODUCTION.

A sentence which has one or more embedded S within NP and/or VP is defined here as a complex sentence. The embedded S within NP is called a relative clause, and that within VP, a complement. Although the syntactic processes of both types are called "complementation" as they share similarities, the two processes are dealt with in separate sections as they also differ in several ways.

Since the classical work on the relativization in Athaspaskan by Sapir (1923), a few interesting studies on the NP complementation have been produced, including works by a Native Navajo linguist Paul Platero (e.g., Platero 1974). It should be noted here that Platero considers that the underlying Navajo relative clause is to the left of the head noun although the more preferred position on the surface is to the right. His analysis is motivated by other syntactic rules within Navajo as well as characteristics shared by verb-final languages, such as Japanese, Korean, and Turkish. In the arrangements of nominal constituents (see table 1, chapter 2), I placed embedded S to the right of N on the basis of the preferred surface position. The analysis of multiple complementation both in NP and VP presented in this chapter suggest that the embedding processes are left-branching both in NP and VP, and it is indeed reasonable to consider the head noun to be to the right of the embedded S in deep structure.

The NP complementation involves basically three different complementizers which are nominalizers (morphologically) with distinct grammatical and semantic features that contrast with one another, whereas no formal complementizer is involved in VP complementation. Furthermore, the former can be seen as an extension of a morphological (lexical) process to the level of syntax, while the latter is a purely syntactic process and so is much simpler than the former.

4.10. NP COMPLEMENTATION.

After the pioneering work of 1923 on the Athapaskan "relative", Sapir (1924) wrote a short paper dealing with Sarcee personal names which derive via relativization. In both of these papers, Sapir deals essentially with only one morpheme, namely *-í*. Not only is there a difficult phonological problem that has not been accounted for, but there are also other parallel forms, for example, *-ná* 'persons,' and *-dí* 'place,' among others that have to be dealt with along with *-í*.

Sapir (1923:139) suggested that "the Athapaskan relative ... consists in essence of an old particle, probably a demonstrative stem, that could be freely added to any word or group of words or relate it to any expressed or unexpressed person or thing." In a recent paper Thompson (1979) presented a body of comparative data which supports this view. In this regard, *-í* and *-ná* are comparable to demonstratives *ìγí* and *dìná* respectively in Sarcee.

Although no abstract syntactic analysis is intended here, a few surface patterns involving the relative clause movement are studied, preceded by phonological and morphological analyses of *-í* and other related forms.

4.11. -í, -ná, and -dí in Lexical Derivation.

In his study, Sapir (1924) shows that personal names are derived by suffixing *-í* not only to verbs, but also to nouns, for example,

(1)	a.	dììt'óní	dììdlìc-*í*	'Spotted Eagle'
		eagle	spotted-N	
		cf. dììdlìc	'it is spotted'	
		tòsìdó-*ó* (← *-í*)	'Rider'	(one who sits on top)
		cf. sìdó	'he sits'	
		īdjín-*à*ʔ	'Singer'	
		cf. īdjín	'he sings'	

b. ìlk'òyí	yìsk'á-*á* (⟵ *í*)	'Bull-Fat'	
bull	he-is-fat-N		
tc'áácí	tcák'ā-*ā*	(ts'áásí tcák'ā-í)	'Crow-Ribs'
crow	rib-N		
ìlk'òyí	mìzólá-*á*	'Bull-Collar'	
bull	his-collar-N		

The underlying form of the relative is *í* (with high tone more often than mid), which completely assimilates to the preceding vowel, or glide (e.g., *gútcòw-ū* 'the big one'). It also unpredictably alternates with *-à* (see 'Singer' above) which does not assimilate to a preceding vocalic segment (e.g., *mìɣáh tógùstsūw-á* 'Having-Yellow-Painted-Tent' = his tent it's-painted-yellow-N). *-í* alternates with *-á* with no appreciable difference in meaning in many other forms.

A more puzzling question with respect to *-í* is that it is apparently deleted in some forms. Sapir (1923:139) notes the deletion of the relative as a general Athapaskan rule with compensatory lengthening or fricative voicing, but the following Sarcee forms do not show any trace of such a process.

(2) a. mītsì dìlk'ōl 'White-Headed = his head it is white'
dīdīcá yìlt'āł 'Running Antelope = antelope he runs'
b. dóóní k'à nàzì? 'Standing-on-a-Gun = on a gun he stands'
dzílō ɣā kù? 'Heaven-Fire = daylight-point at fire'

One may hasten to conclude that *-í* is deleted after *l, ł,* or ?. It certainly seems to be the case that it is more often deleted than not after one of these consonants, but there is no way to account for counterexamples such as *ītsʼīdásùł-ī* 'sleigh = what is dragged along,' *màɣázínà àɣáł-í* (*màɣázínà? ìɣáł-í*) 'Wolf-Carrier,' and *ìɣà?-í* 'the one named' among others.

This apparent phonological problem may not be accidental considering the abstract nouns which derive from verbs without any formal change as mentioned elsewhere in this book (see 2.33.5).

While the etymology is transparent in the above personal names and many other similar nouns such as *nààtłʼúwú (nààtłúw-í* 'one that weaves') 'spider,' *gūtłʼúwú* (*gūtłʼúw-í* 'that which is woven, coiled') 'grass,' *mítcà gùlìní* (*mítcà gùlìn-í* 'one that has his tail') 'spoon,' etc., these forms should be treated as words in contradistinction to relative clauses. In other words, these forms may be derived by a rule of lexical derivation as distinct from a rule of syntactic derivation. It should also be pointed out that *dìlt'óní* 'eagle,' *ìlk'óyí* 'bull,' *ts'áásí* 'crow,' etc. must also have a similar etymology, as suggested by the final vowel, although the rest of the etymology is opaque.

It is also interesting to note that most of the ten basic numeral terms end in *i* or *a*. Where the latter is viewed as *i* assimilated to the preceding vowel, the final vowel of the numerals (except *tłìk'āzá* 'one' whose last syllable may be related to *zó* 'only') is identifiable as the relative form. This view is supported by the fact that another set of quantifiers is derived by affixing *-ná* to the basic numeral terms, and this derivation includes the deletion of *-i* along with other phonological adjustments (see Cook 1971d), for example, *tłò-ná* 'one/some person' (cf. *tłìk'āzá* 'one'), *àkí-ná* 'two persons' (cf. *àkíyí* 'two'), *táá-ná* 'three persons' (cf. *táák'í* 'three'), and so on.

The behaviour of *-dì* (note low tone) in lexical derivation is much the same as the other two. The following three sets of derivations illustrate the point:

Basic numeral/*-í*		*-ná*		*-dì*	
tłìk'āza	'one'	tłònná	'one/some person'	tłòdì	'one/some place'
àkíyí	'two'	àkínná	'two persons'	àkádì	'two places'
tóók'í	'three'	tóónná	'three persons'	tóódì	'three places'
díítc'íí	'four'	díícná	'four persons'	díícdì	'four places'
gúùt'áá	'five'	gúùt'ánná	'five persons'	gúùzìlt'ádì	'five places'

The numerals are not the only bases for lexical derivations in which those forms are involved. There are a number of other forms which are derived by the same process. Of these, the deictic-demonstratives are as systematic as the numerals, as shown below.

	-í		*-ná*		*-dì*
dìní	'this person'	dìnná	'those people'	ìɣídí	'right here'
nāàhi	'that near 2p'	nōònná	'those near 2p'	nāàdí	'there near 2p'
nùɣūú	'that yonder'	nùɣūná	'those yonder'	nùɣūdí	'yonder'
dōòhí	'that one (out of sight)'	dōònná	'those (out of sight)'	dōòdí	'yonder (out of sight)'

4.12. Grammatical and Semantic Properties of Relatives.

Of the three forms, *-dí* is the simplest as it marks a point in time or place. As is reflected in the deictic-demonstratives and other nominal forms, the distinction between "place" and "time" is not maintained in the lexical or grammatical system, for example, *dàà* 'here, now,' *áátʼíɣí* 'right there, right

then,' etc. There is no semantic difference as it is used in morphology (i.e., lexical derivations) or in syntax (i.e., as a complementizer).

The categories marked by the other two are number and gender and there are some differences between the use of *-í* and *-ná* as an individual morpheme in lexical derivations and as a complementizer in syntactic processes. But the systems involved here are not as "rigid" or "predictable" as one would expect of a grammatical category. The number system indicated by the above lexical set show contrast between singular and plural marked by *-í* and *-ná* respectively. As complementizers, however, *-í* marks singular and *-ná* dual, where plural is marked by *-ná-ìná* (obviously a reduplication of *-ná*).

As for the gender, the system is much looser than the number category. As shown in the analysis of demonstratives, the distinction is between human and nonhuman, but the status is only marginal in the lexicon. In the relativization process, the distinction is more systematically maintained by *-ná* (+human) and *-í* (–human).

What makes the systems break down is that *-í* is unmarked and that the use of *-ná* in some lexical items is exceptional. *-í* is used as a general complementizer or relativizer where gender or number distinctions are predictable from the context.

Another morpheme that should be considered along with the complementizers *-í* and *-ná* is *-ì* (past tense)[2] which appears more often with the two complementizers. I shall illustrate the categories outlined above with the following examples. Consider the three relativized forms which derive from *dìskín* 'he has gone for trading.'

(3) a. -í. dìskín-í — 'the one who has gone for trading' / 'that he has gone for trading'
b. -ná. dìskín-ná — 'the two who have gone for trading'
c. -ná-ìná. dìskín-ná-ìná — 'those (three or more) who have gone for trading'

The first sentence is ambiguous as the two glosses indicate. *-í* in the second case is used as a general complementizer where no gender or number distinction is relevant. Even as a relativizer (note the terminological distinction I make here), *-í* can be unmarked as to gender or number, for example,

(4) a. yímóɬ-í — 'the one (person) who is swimming'
b. yi?ùɬ-í — 'the one (animal) that is swimming'
cf. yī?ùɬ-í-ká — 'those ones that are swimming'

Here, *-í* may refer to a person or animal(s), where the distinction is predictable from the two different verb stems, one used for humans and the other for animals. As the third example with *-ká* indicates, the ambiguity of number can be avoided.

Although not many verbs are attested with *-ì* (past), forms like the following suggest that there is a second tense category (see chapter 10) along with the future (Li 1930, Cook 1972).

(5) a. dāā xāgìt'ódz-ì-ì ìsts'īnílà
here they-walked one-said
'"right here they passed" someone said'
b. ɣímóɬ-ì-ná
'those who have swum'
c. dìskín-ì-ná-ànáá
'those (3 or more) who have gone for trading'

The past morpheme *-ì* with a lexical tone (low) is homophonous with conjunction *-ì* (5a), but contrasts with *-ī* (future) and *-í* (complementizer); furthermore, examples like the following suggest that the low tone of the tense morpheme lowers the high tone of the complementizer:

(6) a. xàtcínìnáh-í — 'the one who will poke his head out'
b. xàtcínìnáh-ì-ì — 'the one who was to poke his head out'
c. dìskín-ì-ì — 'the one who had gone for trading (now back)'

Another morpheme that is closely related to the complementizer is *-ɣá* (a kind of dimunitive) which occurs immediately following *-í* and appears unmarked, just like the co-occurring *-í*, with respect to gender or number, although available examples indicate reference only to singular nouns, for example,

(7) a. dìcnìdj-í-ɣá — 'one who keeps quiet'
b. tósìsɣás-í-ɣá — 'the thing which I painted white'
c. yīīzùɬ-í-ɣá — 'the thing that is dragged (sleigh)'
d. dìná nìtsìtɬ'-í-ɣá — 'the man who is small'
e. dīīk'áz-í-ɣá — 'reddish one (person or animal)'

4.13. Function and Order of NP Complementation.

The primary syntactic function of the relative clauses marked by *-í, -ná,*

and *-dí* is to modify the head noun in NP. The typical surface position of the relative clause is to the right of the head noun. There are, however, other syntactic functions associated with the NP complementation, other syntactic positions the relative clause may assume, and there are relative clauses without a head. Uncommon NP complementations include those in which two or more sentences are embedded, all appearing on the surface to the right of the head noun. An analysis of such a construction is particularly difficult. This section is intended to survey the range of the surface realizations and possible rules governing the syntactic processes.

4.13.1. Relative Clauses Marked by -í and -ná. The relative clauses marked by these complementizers typically occur to the right of the head noun which they modify. The head noun in such a construction is most commonly subject, object, or indirect object (i.e., NP of a PP), for example,

(8) a. dìná nìtɬōn-ná nāāɣá nàɣídál
'a lot of people are coming to us'
cf. nìtɬòn 'there are many'
b. dìná ɣíkó dìsdátɬ'-ì-ná-ʔī ɣīk'ààdál-là
those him-for they-went-the him-on-they-came
'Those who went to look for him have come upon him (found him).'
cf. -dátɬ' (prevocalic) vs. -dál '(pl) to go (perf)'

(9) a. zòz ìtsíy-í ɣìk'òòyā-là
child he-is-crying-N him-on-she-came
'She came upon the crying child.'
b. nīcīná dìsmò-ná gīmáʔí-là
Cree they-are-on-war-path he-saw-them
'He saw Crees who were on the warpath.'

(10) a. tsá-tcúw sāʔón-í ɣà nàɣíyá-lā
rock-big it-is-lying-N to he-went
'He went to the big rock lying there.'
b. mīɣīdzàʔ xāɣīītɬ'ól-í ɣìh zōdìstɬ'ú-là
his-penis it-is-long-N it-with he-is-belted
'He was belted with his penis which was so long.'

Each of these three sets of examples (8–10) contains a typical relative clause which modifies the noun to the left of it. The NP so modified in (8) is subject, in (9) object, and in (10) NP of PP. Some comments might be helpful to understand (8b) and (10b). There are two postpositional constructions in (8b); *ɣíkó* 'for him' belongs to the VP of the embedded S (relative clause), and *ɣīk'à* 'on him' belongs to the VP of the matrix S, being incorporated into the prefix complex. The postposition of PP in (10b) is affixed by *ɣi-* (4p) instead of *mi-* (3p) since the sentential subject (which is also in the third person) is not coreferential to the NP of the postpositional construction.

4.13.2. Relative Clauses Marked by -dí. This complementizer is different from the other two in several ways. The NP complemented by *-dí* behaves exactly like a locative noun such as *kòwá* 'camp,' *tsìs* 'hill,' *sāɣáh* 'my home,' etc. It is unmarked as to gender or number. Nevertheless, its function as a complementizer is exactly the same as the other two, but used in a more restrictive way as exemplified by the following.

(11) a. dàà dímòyá náànìst'í-*dí* kúɣíɣáʔàz-là
here edge tent-pitched-N she-looked-in
'She looked in where a tent is pitched here at the edge.'
b. nàts'ìnīnó-*dí* ìsìnà ɣìh nànídáɬ-là
one-stopped-to-camp-N him-with she-arrived
'She arrived with it where they stopped to camp.'
c. míts'òyá tc'ìctcù-là àtɬíts'íídàɬ-dí
his-wife someone-captured each-other-fight-N
'His wife was captured when/where they were fighting.'

It may be accidental, but the relative clauses marked by *-dí* do not have a head noun (see the following subsection). This fact and examples like (11c) where the relative clause is moved to the right of the predicate verb might suggest that *-dí* is not a complementizer, but a conjunction. But the syntactic function which compares with that of a single locative nominal and the morphological characteristic which compares with that of *-ná* and *-í* as discussed in a preceding subsection, among others, support the view that *-dí* is a complementizer rather than a conjunction whose identity is, after all, questionable (see chapter 3).

4.13.3. Headless Relative Clauses. Relative clauses occur frequently without a head noun. Whether it is because of an NP deletion rule or other reasons cannot be easily determined. Meanwhile, there is good reason to believe that each of the following four headless constructions has its own explanation for the absence of an overt head noun.

(12) a. nītcòw-ú-ʔī zīsγí-lā
it-is-big-N-D he-killed
'He killed the bigger one.'
b. tóógù γîkáànìγáʔàg-í xádjà-lā
three-times it-fooled-him-N it-happened
'It fooled him three times = it fooled him three times, it so happened.'
c. sīsgùs-í gūdìnìc
'He used to call me down.'
cf. sīsgùs 'he calls me down, picks on me'
d. dú nínáàyáh-á-áʔà
no you-get-up-again-N-M
'You will never get up again!'
('it is not the case that you will get up again')

It is not difficult at all to see that (12a) has the same structure as those sentences in (9), in which the object noun is modified by a relative clause. In (12a) the object noun is deleted by a rule which is not the main concern here. On the other hand, there is no good argument to motivate an underlying head noun for the remaining three NP constructions above.

In (12b) the higher verb is "impersonal" (i.e., agentless; cf. an English sentence 'it rains') that requires a complement, which happens to be the embedded S and the complementizer *-í* 'that it fooled him three times.' The structure of the third sentence above is virtually identical to that of the second; the only difference is that the higher verb in (12c) is not impersonal. With the verb stem *-nìc* 'to do (iterative),' the matrix S means 'he keeps doing so.'

As discussed elsewhere, *-áʔà* may be treated either as a modal or a higher verb reduced from *át'à* 'it is so.' Considering the emphatic use of this verb which is a copula, it is not unreasonable to compare the sentence with a cleft sentence in English.

In short, in (12a) the NP whose head noun is deleted is the object of the verb *zīsγí-là* 'he killed,' whereas the NP of the other sentences, which do not have an underlying head noun, is the complement.

4.14. Movement Rule.

Given that Sarcee is a verb-final language, it is interesting to find NP's, particularly those involving complementation, moved to the right of the verb. It may be explained by extraposition, which has drawn attention of

many syntacticians, especially those who work on universals. Consider the following WH-questions:

(13) a. xát'àá-sdjà-gù nīnánàsdātɬ'-ì-ì
what-happened-so ye-come-home-past-N
'why is it that you (pl) have come home?'
b. xát'àá nìdjà-gù nìγá-àhílá gūtōnánínòʔ-í
what-for you-did-so your-son-with you-moved-back-to-people-N
'Why did you move back to the people with your son?'

As mentioned elsewhere, the first constituent of the WH-question is always the question word. The NP that has been moved is subject in (a) and object in (b). That an NP with complementation has not been found in any other position (i.e., before the verb) in WH-questions suggests that the movement in WH-questions is an obligatory rule. One could hasten to suggest that it could be accounted for by a rule of extraposition exemplified by the following sentences.

(14) a. dìγí sáγá k'áníγís tcìtcá mìk'ánìsγìs-í
this me-for you-break unable I-break-N
'Break this one for me; that I cannot break.'
b. tɬìk'āzá zìsγí-lā gūγáátɬ'àɬ-í
one he-killed ahead-he-is-running-N
'He killed one who was running ahead.'

dìγí (DD) and *tɬìk'āzá* (Q) which function as head of NP in (a) and (b) respectively are not affected by the movement rule, while the embedded S with complementizer is extraposed. In other words, (14a) and (14b) derive from (15a) and (15b) respectively:

(15) a. tcìtcá dìγí mìk'ánìsγìs-í sáγá k'áníγís
'Break for me this one that I am unable to break.'
b. tɬìk'āzá gūγáátɬ'àɬ-í zìsγí-lā
'He killed one that was running ahead.'

In light of this movement rule, consider the following sentence.

(16) a. áát'íγá-át'à nàhóó zìsγín-í
that-one-it-is your (pl)-mother he-killed-her-N
'That's the one who killed your mother.'

An interesting aspect of this sentence is that the subject (*áát'íyá* ⟵ *áát'íyí*) is followed by a copula (*át'à*), which in turn is followed by a extraposed NP. Considering the main verb (copula) and the equational construction on the one hand, and the extraposed NP on the other, (16) is comparable to (12d) by virtue of having a nominal predicate with a copula and at the same time to (14a) by virtue of having an extraposed NP. This means that (16) is derived via two rules most likely ordered as shown in the following derivation.

Input $[_S[_{NP}[_S$áát'íyí nàhóó ìsɣín$]_S]_{NP}$ $[_{VP}$át'ą́$]_{VP}]_S$
that-one your-mother he-killed copula

↓

Rule (1) áát'íyí nàhóó zīsɣín-í át'à
'That one *did* kill your mother =
It is the case that that one killed your mother.'

↓

Rule (2) áát'íyá-át'à nàhóó zìsɣín-í
'That *is* the one who killed your mother.'

Putting the formal details aside, the functions of the two rules certainly compare well with the two well-known rules, namely cleft (Rule [1])[3] and extraposition (Rule [2]).

4.15. Multiple NP Complementation.

The examples of NP complementation cited so far include only those which have a single embedded S. Although examples are rare, available texts provide a couple of clear cases in which a noun is modified by two or more embedded S's (relative clauses):

(17) a. xánìdá ìsíná ts'ól t'ò sìdō-ó ìtsìy-í
a-while then moss-bag inside he-sits-N he-is-crying-N
dìsts'ó-là
she-heard
'A little later she heard what was sitting in a moss-bag crying.'

b. nūɣú àkíyí tsáyúúk'ōyí dìùdlīc-í āt'ín-í
those two fox it-is-spotted-N it-is-staying-N
zísɣín-á sìsgáàká mígò nànīstłō
he-killed-N my-children him-to I-give-away

'I will give away (in marriage) my children to the one who has killed those two spotted foxes staying there.'

In the first sentence above, there are two relative clauses, *sìdō-ó* 'that is sitting' and *ìstsìɣ-í* 'that is crying,' but there is no overt head noun. It is quite reasonable to assume that there is a Pro-form that these two relative clauses modify. As mentioned at the outset of this section, one could argue that the embedded S is at the left of the head noun (Pro in this case), although the surface relative clause usually appears at the right. Related to this question is the underlying order and relationship of the two or three embedded sentences within an NP. In other words, which one of the two relative clauses in (17a) comes from a higher sentence? Does *sìdō-ó* modify *ìtsì-í* or vice versa? It seems unlikely, but the two may derive from conjoined sentences. Assuming that the embedding is a left-branching process, the deep structure of NP which is object of *dìsts'ó* 'she heard' can be represented by a tree diagram such as figure 1.

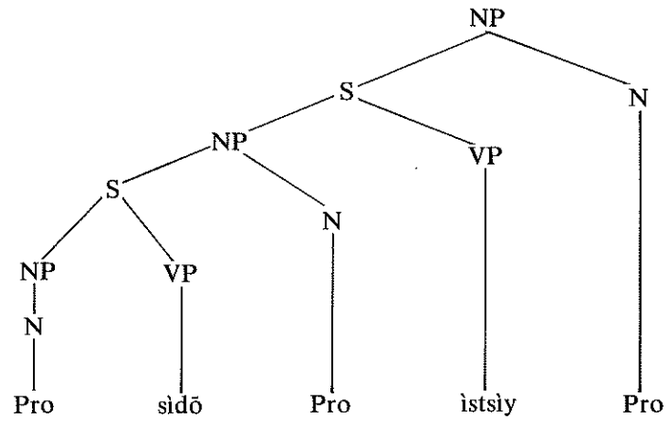


Figure 1. Deep structure of object NP of *dìsts'ó*.

The second sentence in (17) is even more complex. There are two NP's before the postposition with a copied pronoun, i.e. *mígò* 'to him,' and it is the first NP (starting with *nūɣú* 'those' and ending with *zìsɣán-á* 'who has killed') that constitutes a PP with *mígò*. In other words, the NP of PP is split from the postposition by the object NP *sìsgáàká* 'my children.' Two relative clauses *dìùdlīc-í* 'that is spotted' and *āt'ín-í* 'that is staying'

modify *nūγú àkíyí tsáyúúk'ōyí* 'those two foxes,' which is object of *zìsγín* 'he has killed' which in turn constitutes a relative clause along with *á* (⟵ *í*), whose head noun may very well be a Pro-form. The phrase structure of the PP is so complex that it cannot easily be shown by a single tree diagram. The first diagram below (figure 2a) shows the structure of the PP whose NP contains an embedded S which we shall label as S_1, for ease of reference. The second diagram (figure 2b) illustrates the structure of the object NP of S_1.

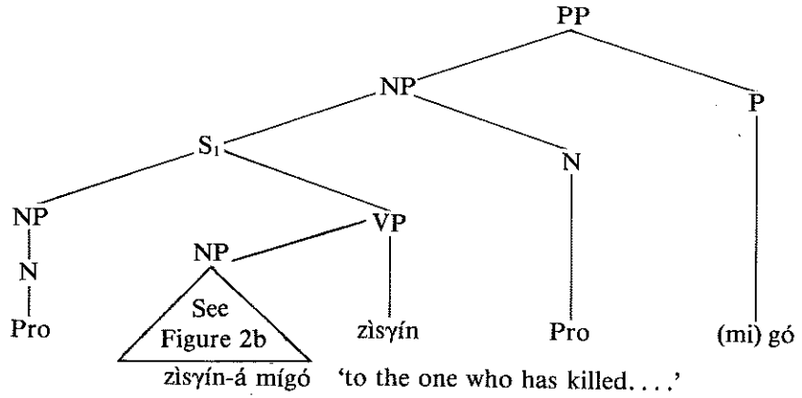
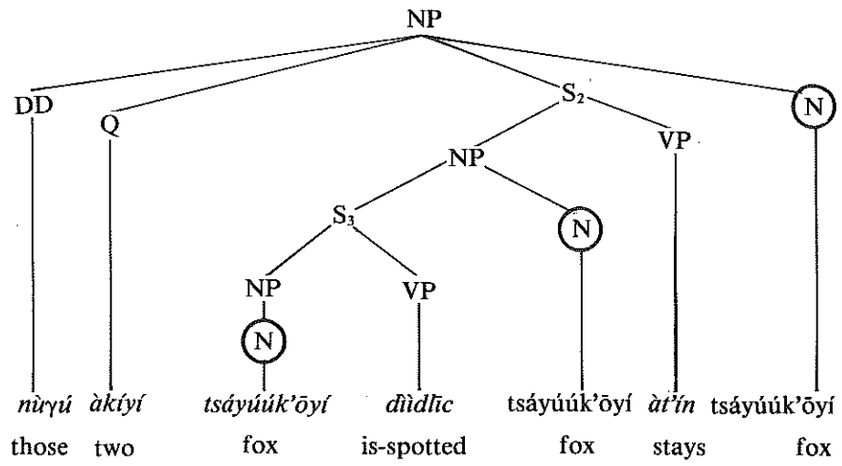


Figure 2a. PP with S embedded in NP.

The coreferential nouns in the second diagram are circled. Notice that the second and third coreferential nouns (i.e., those dominated by S_2 and S_1) are deleted by an equi-NP deletion rule which is equivalent to a Navajo rule that Platero (1974) describes. Assuming that the forward deletion is correct and that the syntactic relationship of S_2 and S_3 is correct as shown in the second diagram, two tentative conclusions may be drawn. First, the underlying order of the embedded S is to the left of the head noun despite the preferred surface order. Second, the NP complementation is a left-branching process.

4.20. VP COMPLEMENTATION.

A VP may be complemented by an NP or an S. Since the function of NP as complement is discussed elsewhere and the structure of a complement NP



nùγú àkíyí tsáyúúk'ōyí dìidlīcí àt'ín
'those two spotted foxes that are staying there'

Figure 2b. Structure of object NP of S_1.

is not different from any other NP, no further discussion is required here. The verbs that require an S as complement are limited in number and must have developed from ordinary verbs which do not require any complement, just as the so-called "auxiliary verb" has in English and many other languages.

Unlike NP complementation, no complementizer is used in VP complementation (although *gu-* may be considered one; see below), and the position of the embedded S is always fixed, that is, the verb of the embedded S and that of the matrix S are always juxtaposed. Considering this fact and the fact that verbs which can be used in the matrix S are limited in number and occur without any other constituents (modifiers) other than the complement S, the higher verb may very well be considered an auxiliary verb. On the other hand, the structure of the multiple VP complementation demonstrates an interesting syntactic process that is essentially identical to the NP complementation.

4.21. *Four Verbs in VP Complementation.*

The four most frequently used verbs that require an S as complement are *-náh, -nát, -djàg*[4] (A, C, B) 'to become,' *-líh* (A) 'to like/think,' *-zīn, -zīd* (A, B) 'to want, think,' and *-láh, -lòg*[4] (A, B) 'to cause.' The ordinary use (as a verb in a simple sentence) as well as the "periphrastic" use (as a higher verb) of these verbs is illustrated by the examples below.

(18) a. k'àgù*náh*
'It will come to an end.'
sày*ínát*
'You are becoming like me.'
xàkídjí ás*náh*
"I will become chief."
b. dīgáz gwáày*inát*
'It is turning hard.'
símì dīgáz gwāád*jà*?
'My stomach got hard, got cramped.'
cf. símì dīgáz 'My stomach is hard.'

(19) a. sánì*líh*
'He likes me.'
àlíní ánì*líh*
'He likes meat.'
ìcdjín-í ánìst*tíh* (s-l ⟶ tł)
'I like singing.' (singing = that I sing)
b. dìdjíh gúùst*tíh*
'I think I will sing; I would like to sing.'
ìstsáh gúùst*tíh*
'I might see him; I would like to see him.'

-líh of (19a) is an ordinary transitive verb as indicated by object prefix *si-* (vowel *i* deletes before *a*) as well as object NP's *àlíní* 'meat' and *ìcdjín-í*. Notice *gw* and *gu* in the (b) sentences in (18) and (19). This is an incorporated adverbial particle as discussed in the next subsection. Consider the verb themes, all of which are based on stem *-zīn* (A) / *-zīd* (B) 'to think, want' in four different sets of examples below. In (a) and (b) sentences, the verb is used as an ordinary intransitive or transitive verb, while in (c) and (d) sentences the same verb is used as a higher verb.

(20) a. yīnīs*īn* (yi-ni-s-zīn)
'I am thinking.'
yīní*zīn*
'He is thinking.'
gíyìnī*zīn*
'They are thinking.'
b. *máyínísīd* ⟵ mi-á-yi-ni-s-zíd
'I have thought about it.'
γáyínízīd ⟵ γi-á-yi-ni-zíd
'He has thought about it (4p.).'
sìyīnízīn ⟵ si-yi-ni-zìn
'He wants me.'
nīyīnísīn ⟵ ni-yi-ni-s-zìn
'I want you.'
c. *tādìstsús* yīnīs*īn*
'I want to light it up.'
cf. tādìstsús 'it lights (said of fire).'
sìgìstsáh gíyīnī*zīn*
'They want to see me.'
cf. sìgìstsáh 'They will see me.'
ìstsáh yīnīs*īn*
'I want to see him.'
cf. ìstsáh 'I will see him.'
d. ìcdjīn *sìyīnízīn*
I-sing he-wants-*me*
'He wants *me* to sing.'
ìc*í*ìdjīn *nāhīgīyínízīn*
we-sing they-want-*us*
'They want *us* to sing.'
*ni*djīn *nīyīnísīn*
you-sing I-want-*you*
'I want *you* to sing.'

The first two (b) sentences have an incorporated PP in the prefix (*mi-á* and *γa-á*) with no object prefix, while the second two (b) sentences have an object prefix (*si-, ni-*). It should be noted that a sentence with an intransitive verb is used as a matrix S in (c) sentences, while a sentence with a true transitive verb is used as a matrix S in (d) sentences. Particularly worthy of note is the coreferentiality of the object of matrix S and the subject of complement S in each of the (d) sentences.

(21) a. ās*tɬáh*
'I will make it.'
ánì*lò*ʔ (g-)
'You made it.'
áɣì*lò*ʔ
'He made it' (ɣì- 4P obj).
b. dìt'áá ás*tɬáh*-ì
'What am I to do?'
īst'óná álò-lā
'He has made arrows.'
c. màdìcìj gwāás*tɬò*ʔ
'I made it rattle/I caused it to rattle.'
yīnàsʔí ās*tɬò*ʔ
'I showed him/I made him see it.'
tūnáákòɬ gwāàs*tɬò*ʔ
'I made the water boil.'

The imperfective and perfective verb stems *-láh* and *-lòg* respectively are used as ordinary transitive verbs in (a) and (b) sentences. The (c) sentences exemplify the periphrastic use of the transitive verb. Each embedded S is a sentence which may occur alone.

4.22. gù as VP Complementizer.

The functions of *gù* as a modal and as a subordinate conjunction are discussed elsewhere. Although *gù* does not occur consistently in VP complementation, it is frequently used in complements which are represented either by an NP or S. The second NP in the following sentences is complement of *-djàg* 'to become (perf.).'

(22) a. sídá nīnìyá *gw*àádjàg-ìt'íyí
my-sister bear she-become-really
'My sister has become a bear (indeed).'
b. tɬíká tsìtɬ'í-ʔí ìsgáāká-*gù* ádàgídjà-là
dogs little-the boys they-became
'The pups have turned into boys.'

There are two questions, one phonological and another morphosyntactic, with respect to the use of *gù* in sentences like the above. In (a) *gù* is incorporated into the prefix of the higher verb (*gù-ádjàg*) instead of being affixed

to the complement NP as in (22b). When it is incorporated, *u* becomes nonsyllabic before *a* which becomes doubled (compensatory lengthening). The unanswered question is why it does not become incorporated in the second sentence above. These two sentences happen to have *gù* following the complement NP, but there are many similar structures in which *gù* does not occur. It may be governed by a semantic constraint, but no definite answer is available.

As the following examples show, *gù* is also affixed to the embedded S in VP complementation.

(23) a. k'ādà tínáts'ínáh-*gù* ágūlāh
back one-moves-camp you-make-them
'Make them move their camps back!'
b. dìkúy *gw*āàdjàʔ
'It's got lukewarm.'
cf. dìkúy 'it's lukewarm'
c. náàdìyàɬ *gw*áàdītɬà-là
she-is-staggering she-pretended
'She pretended that she was staggering.'

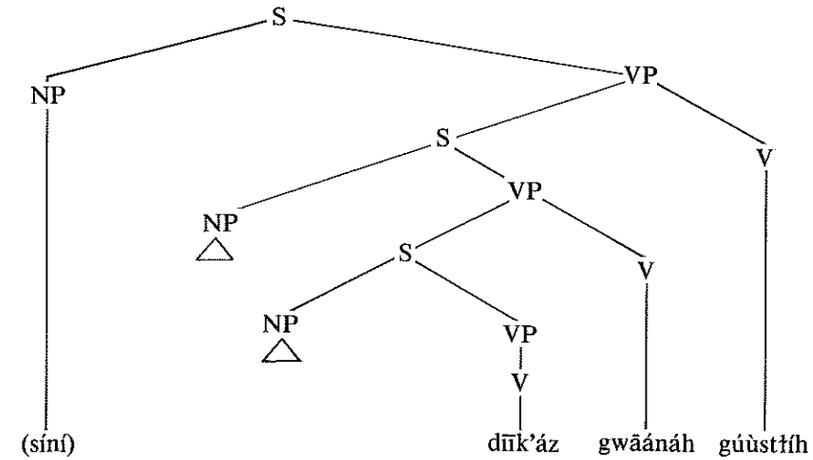
Just like the case of (22), *gù* is affixed to the complement S in (a) and incorporated into the higher verb prefix complex in (b-c). As shown in (20) there are many other similar structures in which *gù* is not chosen at all. While it is not clear when *gù* is chosen and when *gù* is incorporated, it is quite clear that *gù* is not required in all cases of VP complementation. It is, therefore, impossible to determine the status of *gù* as a complementizer.

4.23. Multiple VP Complementation.

Although a given VP may normally have only one embedded S as complement, sentences with more than one complement S within the VP have been recorded. Interestingly, the maximum (recorded) number of S's in the VP complementation is two and the process is clearly left-branching. The following sentences illustrate the process.

(24) a. dīīk'áz gwāánáh gúùstɬíh
it-is-red it-becomes I-think
'I think it will turn red.'
b. gídjín gìyìnīzìh gúùstɬíh
they-sing they-want I-think
'I think they want to sing.'

Note that the left-branching process is the mirror image of the right-branching process of English. This phenomenon has apparently something to do with the characteristics of word order as some of the better known verb-final languages have the same process as Sarcee. The following tree diagram shows the left-branching process of VP complementation, which compares well with that of NP complementation.



dīīk'áz gwāánáh gúùstłíh
'I think it will turn red'

Figure 3. Left-branching process of VP complementation.

Unlike the case of NP complementation, the nature of left-branching in VP complementation is transparent; that is, no abstract representation is required to motivate the left-branching process. Furthermore, the order of the VP's in a sentence is rigid and no cases of VP movement have been observed, perhaps a characteristic of the verb-final language.

Only a brief sketch of the VP complementation process is presented in this section. More work is needed to clarify the aspect-tense relation between the matrix and embedded sentences, the use of *gu* and the condition under which it is incorporated, and the choice between the intransitive and transitive verb in the matrix sentence as in (20c) vs (20d), among others.

5

The Verb Morphology

5.00. INTRODUCTION.

Certainly the most complex and yet most interesting aspect of Athapaskan grammar is the verb morphology. On the concrete level, the verb is analyzable in terms of a stem, prefix, and suffix. While the analysis of suffixes and enclitics has not received much attention for any Athapaskan languages, the analysis of prefixes in terms of positional categories and grammatical functions and of stem variation with respect to grammatical categories such as aspect, mode, and tense, has been the primary concern of Athapaskan students.

Difficulties in the analysis of verb morphology arise because of the following reasons, among others. First, neither the morphemic identity nor the grammatical function of many prefixes is transparent. For example, Young and Morgan (1980) identify nine prefixes of the shape *ni-* or *ní-* in Navajo, which apparently occur in the same prefix position (i.e., are mutually exclusive). To cite just another example, they also list ten mutually exclusive prefixes, all in the form of *di-*. An interesting but frustrating question is whether they do indeed represent ten different morphemes that happen to be homophonous or whether there is only one that may have multiple grammatical functions. Even if there is clear evidence that a single morpheme has, in the historical process, acquired diverse functions (cf. English pre-

positions), the synchronic morphemic identity may be largely arbitrary in many cases. Second, the Athapaskan phonology is generally opaque, so that only abstract analysis and comparative study may reveal underlying regularity. Third, the distinction between the derivational (lexical) process and the inflectional (grammatical) process is by no means clear, nor may a given phonological feature or process (be that a vocalic, consonantal, tonal, or any combination of these) be identified with respect to a particular lexical representation or a grammatical category. A quick glance at stem variation would demonstrate this point. For this reason, apparently, some Athapaskanists viewed (erroneously) the stem variation as "allomorphic." Fourth, the Athapaskan verb is particularly complex and rich in its derivational processes, so that verbs of many different categories (e.g., stative vs. active, active vs. passive, intransitive vs. transitive) may derive from the same root or verbs deriving from different roots may constitute a lexical set (e.g., classificatory verbs) or a grammatical set (e.g., singular-dual pair, singular-plural pair). This derivational complexity increases the problem of subcategorization, which has been discussed in terms of "theme types and systems" (Golla 1970) or "theme categories" (Kari 1979).

Besides these difficulties arising from the inherent nature of the Athapaskan verb, there is a serious problem arising from the inconsistent and ill-defined terminology applied to the analysis of basic grammatical categories such as aspect, mode, and tense. Since the analysis of these verb categories has been one of the major concerns of Athapaskan linguistic scholarship, it is necessary to straighten out the terminological inadequacy and confusion before dealing with other problems in the analysis of the verb.

5.10. ASPECT, MODE, AND TENSE.

Of all grammatical categories, aspect is probably most complex in its internal system, both morphologically and semantically, and continues to be one of the favourite research topics (e.g., Anderson 1973, Friedrich 1974, and Comrie 1976, to name only a few). One of the main difficulties in dealing with aspect, mode, and tense is that these categories are not easily distinguished from one another as they are manifested within one morpheme class or constitute one inflectional process in many languages, including Athapaskan. In Athapaskan the problem is further compounded by the fact that what appear to be subcategories of aspect are properties of both inflectional and derivational processes (see below). It is most unfortunate that even the leading Athapaskanists have never distinguished these

grammatical categories as they are defined in general linguistics, nor have the terms been used consistently. I shall therefore attempt in this section to present problems in defining and distinguishing these verbal categories as general grammatical categories, discuss inconsistent Athapaskan practices, and propose terminological clarifications.

Among many research articles and monographs dealing with the three verbal categories, I find Jakobson's (1957) definitions and illustrations the most concise and useful. Making distinctions between speech event (E^s) and narrated event (E^n), on the one hand, and between participants of speech event (P^s) and participants of narrated event (P^n), Jakobson defines the three categories as follows:

> "E^nE^s) TENSE characterizes the narrated event with reference to the speech event. Thus the preterit informs us that the narrated event is anterior to the speech event.
>
> E^n) STATUS and ASPECT characterize the narrated event itself without involving its participants and without reference to the speech event. . . .
>
> $P^nE^nP^s$) MOOD (mode) characterizes the relation between the narrated event and its participants with reference to the participants of the speech event . . . this category 'reflects the speaker's view of the character of the connection between the action and the actor or the goal.'"

These definitions, which compare well with Hockett's (1958) less formal definitions, require no further elaboration. Nonetheless, it is important to bear in mind a distinction between the morphological representation of a grammatical category and its semantic interpretation. For example, as Twaddell (1963) illustrated in a most lucid manner, the morphological representation of "past" in English does not always refer to *actual* E^n anterior to E^s, for example, (a) *If you were here* (contrary to fact), *you would not have missed her;* (b) *You were there last night* (fact); and (c) *I thought you were at the beach* (formal agreement). These different semantic interpretations which are contextually bound are not necessarily inconsistent with Jakobson's definition as far as the relationship between E^n and E^s are concerned.

Linguistic Structure of Native America (1946) by Hoijer and others contains two Athapaskan papers, one by Hoijer on Chiricahua Apache and

another by Li on Chipewyan. Those who are not particularly familiar with the inconsistent practices will find these two papers extremely frustrating. For a set of cognate categories that Hoijer calls "aspect" (e.g., momentaneous, continuative), Li calls "mode," and what Hoijer calls "mode" (e.g., imperfective, perfective), Li calls "aspect." For Chiricahua Apache, Hoijer recognized five "modes:" "imperfective, perfective, progressive (from which the future is formed), iterative (also the base for the customary), and the optative." From the definitions discussed in the preceding paragraph, it is clear that only true mode is optative, and the others are subcategories of aspect. It should also be pointed out that the "future" in Chiricahua Apache is a subcategory of the progressive or another true aspect, that is, inceptive, since it is formed on the basis of the progressive stem plus inceptive prefix.

Li's analysis of Chipewyan in the same anthology recognizes three "aspects" ("modes" for Hoijer): imperfective, perfective, and future. It turns out that what Li called "future" is optative. Furthermore, Li postulated five "modes" ("aspects" for Hoijer), each of which inflects for the three aspects mentioned above, for example,

> Neuter: θi-tį̨ 'I am lying,' γi'-tį́ 'I had lain (no longer lying),' γwa-s-té 'I shall lie.'
>
> Momentaneous: nɛ-s-téih 'I am lying down,' ni-tį̨ 'I have lain down,' nu-s-té 'I shall lie down.'
>
> Continuative: ná-s-tɛ 'I dream,' ná-θi-tį̨ 'I have dreamt,' ná-γwa-s-té 'I shall dream.'
>
> Customary: dzéré-s-teih 'I am carrying it around,' dzéré-γi-ɬ-teih 'I have carried it around.' dzéré-γwa-s-teih 'I shall carry it around.'
>
> Progressive: da-γɛ-s-tɛɬ 'I am holding it,' da-γi-ɬ-tɛɬ 'I have been holding it,' da-γwa-s-tɛɬ 'I shall hold it up.'

This two-dimensional model is also alluded to by Hoijer in his 1946 article on Chiricahua Apache, but only in 1949 did Hoijer present a set of paradigms showing two dimensions as Li did. This model of analysis, in which various stem sets characterize "aspects" and each set inflects for "modes," has been adopted along with the terminological inadequacy for many subsequent analyses (e.g., Young & Morgan 1980, Kari 1979).

Although Kari (1979) inherited Hoijer's terminology in his analysis of the

Ahtna verb, in which he recognizes four "modes" or "tense-mode" (imperfective, perfective, future, and optative), he attempted to make a clearer distinction between "mode" and "aspect." While this categorical distinction is still marred by the old terminology, he has successfully shown morphological distinctions between "aspect" and "mode," of which the former is governed by the theme category to which a verb belongs and the latter by the individual verb paradigm.

As indicated above, what have been called "modes" are not modes; they are aspects, except "optative" which is a true modal category. I also suggested that "future" (tense) in Chiricahua Apache is better to be treated as "inceptive" (or an optional subcategory of progressive). A similar analysis may be possible for Navajo (see Young & Morgan 1980) and Ahtna (see Kari 1979) among others in which the progressive stem plus the inceptive prefix mark the "future," that is, the formal (grammatical) category is an aspect, which may be interpreted semantically as a future. This interpretation and other data in Sarcee suggest that tense is not a Proto-Athapaskan category (see chapter 10).

Having isolated "future" and "optative" from "mode" categories, what remain are true aspect categories. However, these aspects should be distinguished from the aspects that are characterized by distinct stem sets, e.g., momentaneous, continuative, semelfactive, and so forth. In order to avoid further confusion, I shall make the following distinction: the "thematic" (or lexical) aspect which is inherent in a given theme vs. the "paradigmatic" aspect which is governed by the inflectional process. This distinction serves a greater purpose than making terminological clarifications. Li (1946) treated the progressive in Chipewyan as a thematic category, but the cognate category in the Apachean languages is treated as an inflectional one. If these synchronic analyses are correct, the apparent correspondence between a grammatical process and a lexical process requires an explanation from a diachronic point of view.

To sum up, the only true mode as a grammatical category in Athapaskan is "optative,"[1] where "future" and the rest of the so-called "mode" categories are subcategories of aspect. Those aspects marked by inflection are called here "paradigmatic aspects," in contradistinction to the aspects that are derivationally characterized by stem set variations, which are called "derivational aspects." The latter is a lexical characteristic inherent in a given theme and the former is a grammatical characteristic of a given inflectional paradigm.

Li (1930) postulated five paradigmatic categories for Sarcee: imperfective, perfective, continuative, iterative, and delayed future. There is no

optative in Sarcee. In order to be consistent with a better established convention, Li's "continuative" is called "progressive" in this study. The status of "delayed future" as a paradigmatic category is questionable. For reasons discussed in chapter 10, this category is treated as a optional tense along with "past," which is mutually exclusive with the future, but not with the true aspect category. A typical *active* verb in Sarcee inflects fully for up to four aspect categories by stem variation, and a typical neuter verb does not fully inflect. The paradigmatic potential of the verb is, therefore, determinable in terms of the characteristics of subcategorization, particularly those that determine the derivational aspect for each lexical item (see 5.50).

5.20. PREFIX CATEGORIES.

The descriptive framework of the Athapaskan verb, which has been established since the days of Edward Sapir, identifies about ten prefix positions and categorizes them in terms of inflectional prefixes and derivational prefixes on the one hand and conjunct prefixes and disjunct prefixes on the other. For example, Li (1946) established ten prefix positions for Chipewyan, and he is the first to recognize the disjunct prefixes vs. the conjunct prefixes on the basis of the morphophonemic alternation, particularly of the 2sg subject prefix.

Kari's (1975) study of Navajo and Tanaina demonstrated that the disjunct boundary is a possible candidate for a "Pan-Athapaskan grammatical feature." Phonologically, the disjunct boundary, which is placed to the left of object prefix, is well motivated for many (if not all) Athapaskan languages, and in Sarcee the deletion of conjunct prefixes (e.g., *ni-* 2sg subject) has to be specified with reference to the disjunct boundary (see Chapter 11). Another phonological characteristic (for Sarcee at least) is that the disjunct prefixes have fixed lexical tone (e.g., *xá#* 'off,' *xà#* 'out,' *nà#* 'down,' *ná#* 'up,' *kú#* 'in'), whereas the conjunct prefixes have variable tones, tones that are assigned by rules (see Cook 1971a). The disjunct prefixes are also distinct morphologically from the conjunct prefixes in that the former is loosely bound to the verb, either being an optional modifier of the verb theme or an incorporated element of a derived theme (see below). Particularly interesting is the distribution of *ná-* (iterative) which occurs most commonly in the iterative form. Incorporated postpositional constructions, stems (noun, verb) and adverbial elements suggest that the disjunct prefixes are proclitics which may be better treated as independent constituents of underlying VP.

As for the dichotomy between the inflectional and derivational categories, it is generally agreed that prefixes of person categories (i.e, subject and object prefixes) and the prefixes that specify aspects are inflectional and the rest are derivational. This dichotomy, however, is not always straightforward; particularly ambivalent are the classifiers and the distributive prefix.

Kari's (1979) postulation of twenty-one (eighteen conjunctive and four disjunctive) prefix positions for Ahtna is remarkable in more ways than one. The total number of positions are more than a double of other better known languages, for example, nine or ten positions for Navajo (Sapir & Hoijer 1967, Young & Morgan 1980, Kari 1976), eleven positions for Hupa (Golla 1970), and ten positions for Chipewyan (Li 1946). Among the conjunct prefixes of Ahtna that Kari postulated are several aspect prefixes that have not been well known to exist in other languages, that is, "N perfective" (which Kari, 1976, postulated also for Navajo), "s perfective-negative," "gh completive," "u conative," and "q seriative." The cognates of the N perfective is widely attested (Krauss and Leer 1981). The s perfective-negative and the u conative apparently exist in many Northern Athapaskan languages (including Chilcotin). There is certainly no question that these and other aspect prefixes do exist in Ahtna and other languages, but some of these aspect prefixes may be mutually exclusive with respect to a given verb theme. More remarkable are two separate gender positions in Ahtna, one for the d-gender and another for the n-gender. Kari's discussion of the gender category actually includes two other subcategories: *qo-* (area) and the unmarked (zero). While the qo-gender and the d-gender may co-occur, it does not appear that other genders may co-occur, which means that the n-gender and d-gender may be mutually exclusive. The qo-gender (area) may also be mutually exclusive with either the subject (of impersonal verbs) or object prefix.

In short, the eighteen conjunct prefix positions postulated for Ahtna by Kari are probably overdifferentiated. These prefix categories, however, provide clues to what might be expected of prefix categories in other languages as well as to the historical developments, assuming, as Kari does, Ahtna retains what might be the closest to the Proto-Athapaskan prefix structure. For instance, the Sarcee thematic prefixes in position 5, *di-* and *ni-*, which occur in many descriptive verbs and the Hupa thematic prefixes in position 6 (see Golla 1970), are apparent cognates of the Ahtna d-gender and n-gender respectively.

In this book, the Sarcee verb prefixes are categorized into twelve positions, together with the disjunct boundary as shown in table 1.

12. Incorporated PP
11. Adverbial
10. Iterative (*ná-*)
9. Incorporated stem
8. Distributive (*dà-*)
#. (Disjunct boundary)
7. (direct) Object
6. 3p Subject (Deictic)
5. Thematic
4. $Aspect_2$
3. $Aspect_1$ (Mode)
2. 1/2p Subject
1. Classifier
0. STEM

Table 1: Verb Prefix Categories

The Sarcee classifiers are *s-*, *l-*, *d-*, and zero (Ø). These classifiers have been subject to intensive studies (see Cook 1971b, 1978c) because of their interesting phonological behaviour. Particularly remarkable is the synchronic status of *l-*, which is never realized as *l*, but as *i* or *a* completely assimilating (if not deleted) to the vowel immediately preceding. Morphologically, the alternation of classifiers is one of the most conspicuous aspects of theme derivation. These characteristics of the classifiers are demonstrated by the following two pairs of verbs.

(1) a. áyìsdìn ⟵ $á_{11}$-$γi_3$-s_2-s_1-dìn 'I broke it (horse).'
áyìidìn ⟵ $á_{11}$-$γi_3$-$Ø_2$-1_1-dìn 'It (horse) is broken.'
b. yìsʔí ⟵ $Ø_7$-$γi_3$-s_2-$Ø_1$ʔín 'I saw it.'
yìstʼí ⟵ $γi_3$-s_2-d_1-ʔín 'I was seen.'

The two subject prefix positions, 2 and 6, are mutually exclusive. The specified 3sg is unmarked (zero), and it does not matter whether it is postulated for position 2 or position 6. The phonological behaviours of position 2 subject prefixes, particularly *s-* (1sg), *ni-* (2sg), are remarkable as shown in earlier studies (see Cook 1971a, 1971c). Some typical subject prefixes in two positions are shown by the following verb paradigm:

(2) a. ìstsīy ⟵ $Ø_3$- s_2-$Ø_1$-tsīy 'I'm crying' (i- is "peg")
b. nítsīy ⟵ $Ø_3$- ni_2-$Ø_1$-tsīy 'you're crying'
c. ítsīy ⟵ $Ø_3$-$Ø_2$-$Ø_1$-tsīy 'he is crying'

d. īsáàtsīy ⟵ si_3-aad_2-$Ø_1$-tsīy 'we're crying'[2]
e. àstsīy ⟵ $Ø_3$-as_2-$Ø_1$-tsīy 'ye are crying'
f. gītsīy ⟵ gi_6-$Ø_3$-$Ø_1$-tsīy 'they are crying'
g. tsʼítsīy ⟵ $tsʼi_6$-$Ø_3$-$Ø_1$-tsīy 'someone is crying'

The position 3 prefixes are called more often "modes" (e.g., Young & Morgan 1980, Golla 1970, Kari 1979) than "aspects," as are the co-occuring stems (see discussion in the preceding subsection). They are also called "conjugation markers." The grammatical and semantic feature of these prefixes in this position are most elusive. Position 4 is postulated particularly for *di-* (inceptive) and/or *ni-* (terminative), which may precede *si-*, *ni-*, *γi-*, or zero in position 3. As regards *di-* and *ni-*, it is quite often difficult to determine whether they are aspects (position 4) or thematic elements (position 5). As mentioned earlier, *ná#* in position 10 usually occurs in the iterative form, but it may also occur in other aspect forms, for example, imperfective and perfective, which are already marked by position 3 prefixes. Furthermore, there are many iterative forms that are recorded without the prefix in position 10. The distributive prefix *dà#* is comparable to the iterative prefix in that this disjunct prefix occurs optionally in an imperfective or perfective paradigm. A typical active verb, which inflects for four paradigmatic aspects, is marked by one of the three pairs of prefixes in position 3 for the imperfective (A) and perfective (B): ni_3-/ni_3, $Ø_3$-/si_3-, $Ø_3$-$γi_3$-. The progressive (C) is marked by $γi_3$-, and the iterative (D) by $ná_{10}$# (as mentioned above), in which $γi_3$- (perfective) may co-occur. The distribution of the imperfective/perfective prefixes is governed by the theme category, and the subcategorization of the verb themes is primarily motivated by this morphological characteristic. While some details are discussed elsewhere, the following partial paradigm shows the distribution of aspect prefixes in a typical active verb.

(3) a. īdīsáh ⟵ i_7-di_4-$Ø_3$-s_2-s_1-záh (A) 'I'll chase (some game).'
b. ìdìsīsó ⟵ i_7-di_4-si_3-s_2-s_1-zón (B) 'I chased'
c. īyīsáɬ ⟵ i_7-$γi_3$-s_2-s_1-záɬ (C) 'I'm chasing'
d. náàdìcātc ⟵ $ná_{10}$#i_7-di_4-$Ø_3$-s_2-s_1-zātc (D) 'I chase several times.'
cf. ìdìcátc 'I can chase'

The thematic position (5) is to account for elements that have no apparent morphemic status of their own but occur in a particular theme. At least one

object prefix may be considered as thematic, and all incorporated stems and some elements in the adverbial position are thematic.

While subject prefixes have two positions, object prefixes have only one in position 7. Although there is a good deal of formal similarity between the subject and object prefix sets, the morpho-syntactic behaviour of the object set is much more complex than the subject set. Particularly difficult to understand is the alternation of the three specified 3p object prefixes Ø, *γi-*, and *mi-* (also *-i*).

The most underdifferentiated position is 11. Some prefixes occurring in this position appear to be obligatory (i.e., thematic) and others are optional (i.e., modifiers). The adverbials in this position also include postpostions, which should be distinguished from the postpositional construction that is incorporated into position 12. In some earlier analyses of the Athapaskan languages, the incorporated postpositional construction is considered to be two separate prefix positions: indirect object followed by postposition. Incorporated postpositional constructions are of two types: one is lexically bound (i.e., thematic) and the other is phonologically bound (i.e., non-thematic).

The brief comments on prefix categories given in this subsection are intended to provide the basic morphological structure of the verb for easy reference to the examples presented in the subsequent chapters in which some details of each positional category are discussed.

5.30. THE LEVELS OF REPRESENTATION.

The analytical framework of the Athapaskan verb, which has evolved in the last few decades, recognizes three levels of representation: stem, theme, and base. These three levels of constituent structure are defined in Sapir and Hoijer (1967:85) as follows:

> A verb form is analyzed in three steps: (1) the base is separated from the inflectional prefixes, (2) the base is divided into its adverbial prefixes, if any, and its theme, and (3) the theme is divided into its thematic prefixes, if any, and its stem.

This triple-layer model is apparently motivated by immediate constituent analysis on the one hand, and by the characteristics of a great many Athapaskan verbs whose lexeme or "theme" is not represented by a stem (or "root" to be more precise) alone, but by a stem and (an)other thematic

element(s) in the prefix. For example, in Sarcee, the verb theme 'to kill more than one' is represented by the stem *-γón* (perfective) alone as in *yīsγó* (Ø$_7$-γi$_3$-s$_2$-Ø$_1$-γón) 'I killed them,' whereas the theme 'to kill one' is represented by the stem *-γín* (perfective) plus *zì$_5$-* as in *zìsīsγí* (Ø$_7$-zì$_5$-si$_3$-s$_2$-s$_1$-γín) 'I killed him.' Notice the difference in the aspect prefix and classifier. Although the semantic content of *zì$_5$-* is not apparent, it clearly has no independent morphemic status (synchronically at least) from the verb as a whole.

While the "theme" is motivated in contradistinction to the "stem" not only to account for the thematic prefixes, but also for derivational relationships among the verbs that have the same root, it has never been clear what prefix(es), if any, other than the thematic elements, constitute a theme with a given stem. Particularly unclear is the status of the classifier. For example, Sapir and Hoijer (1967:86) indicate that the classifier is a constituent of the base rather than the theme. Edgerton (1963) treats the classifier as an inflectional category in her analysis of Western Apache. Although Kari (1979:59) does not include the classifier in his flow chart that illustrates the derivational process of the Ahtna verb, his specification of individual verb themes makes it clear that the classifier is considered as a constituent of the Ahtna verb theme. Young and Morgan (1980) explicitly states that the classifier is a constituent of the theme.

Less well motivated is the status of the base in contradistinction to the theme. This level is motivated by the optional "adverbial" elements and/or phonologically incorporated postpostional constructions in the disjunct positions. However, it is not always clear if such an element is indeed an affix or an independent adverb. The inclusion or exclusion of the postpositional construction in the disjunct positions clearly indicates this difficulty. From a formal syntactic point of view, such an element can be treated as a constituent of VP, which is independently motivated. In other words, the base is probably not a necessary constituent independent of the theme and VP. Kari (1979) has accorded a more formal status to the base, on which I shall comment in a separate subsection (see 5.43).

The verb stem is easy to recognize and well defined as a morphological unit in a more concrete analysis. It has been shown recently, however, that the stem is derivable from a root plus or minus a suffix. Leer (1979) isolated a number of Proto-Athapaskan stem suffixes that mark "aspect-mode" categories. Kari's (1979) synchronic analysis of Ahtna verbs reveals aspect-marking stem sets that are distinguished by suffix patterns. An abstract analysis of Sarcee verb stems (Cook 1972) revealed that a set of alternating stem-final consonants that mark an aspect derive from a single suffix. In a

concrete morphological analysis, in terms of immediate constituents, the suffixes are clearly a constituent of the stem, that is, stem consists of a root plus a suffix. It is misleading, however, to treat the constituent that represents an aspect/mode category as a co-constituent of the root where the root alone does not represent a theme or a stem suffix alone does not represent an aspect/mode category. Where the theme is recognized as the lexemic representation of the verb, and where the aspect/mode categories are treated as the properties of the theme, the stem does not have a theoretical status in a formal representation of the verb whose lowest constituent is the root. The term "stem," however, is used along with "base" as grammatical units in a more informal discussion as long as there is no ambiguity. Such informal usage has been the practice of many Athapaskan students and has merits practically in a concrete and informal description rather than an abstract and formal analysis. Particularly useful is the concept "stem sets" as used in Hoijer (1974), Kari (1979), and Young and Morgan (1980).

In short, the two necessary levels of representation are the root, which is the core constituent of the next higher level of representation, and the theme, which is a complete (but unmodified) lexical representation of the verb. In a strictly formal sense, the theme is the ultimate level of lexical theme derivation which is distinct from theme modification (see below) and is independent from the inflectional process. In informal use of the term, on the other hand, "theme" is interchangeable with "verb," in which case a theme is not independent of the verbal categories such as aspect and mode that are pertinent to a given form.

Along with a distinction between the two levels of representation of the root and theme, another distinction is made in theme derivation, which distinguishes basic themes from derived themes, and in theme modification, which distinguishes the theme from the base. These distinctions are implicit or explicit in the existing Athapaskan literature, but these terms and concepts, particularly themes and theme categories, do not lend themselves to a straightforward interpretation, as is discussed in the next subsection.

5.40. THEME CATEGORIES AND THEME DERIVATION.

The subcategorization of the verb theme is to explain the inflectional and derivational morphology, particularly the stem variation and choice of aspect prefixes. It is hoped that a systematic subcategorization of the verb theme will ultimately provide a means to predict the range in which a given theme may undergo derivational processes (i.e., how a secondary theme or

themes may be derived from a primary theme) and to determine the inflectional pattern for each class or subclass of theme. For example, Li's Sarcee stem list shows that a stem may inflect up to five paradigmatic categories, but the list does not provide any clue as to how a given stem fully inflects or how two or more stems are derivationally related. Only a thorough study of theme subcategories would predict the paradigmatic pattern for each category and derivational relationships among themes.

In order to highlight different practices of theme categorization, I shall review three analyses, Li's Chipewyan which represents the traditional informal description, Golla's Hupa, which provides the first systematic taxonomic approach to the problem, and Kari's Ahtna, which is the most stimulating analysis of what is claimed to be the core of the Proto-Athapaskan system of theme categories.

5.41. The Theme.

The main point to be scrutinized in this review is how the notion "theme" is treated in the analysis of verbs that are related derivationally by virtue of the shared root. The analysis of a classificatory verb best exemplifies Li's approach. He recognizes five "modes" (i.e., thematic aspects), each of which may also vary according to three "aspects" (i.e., inflectional aspects). He presents the verbs that derive from the root 'to handle a living being' in five "mode" sets: neuter, momentaneous, continuative, customary, and progressive. This raises the question whether these five sets represent five different "modes" of *one theme* or five different themes? From Li's discussion of the continuative form, *ná-s-tɛ* 'I dream,' in terms of stem and thematic prefix, it is clear that each "mode" set belongs to a different theme. In this sense, the theme contrasts with what is implied by the term "classificatory verb" because these five sets of verb forms are understood to represent *one* classificatory verb rather than five. With the distinction between thematic aspect and inflectional aspect, it can now be explicitly stated that five sets of derivationally related themes may be derived from a single root in Chipewyan.

In analyzing a classificatory verb of Hupa, Golla (1970:178) shows a set of four motion themes: "directional," "nondirectional," "progressive," and "stative." These four categories of themes correspond to Li's "modes": "momentaneous," "continuative," "progressive," and "neuter" respectively, with no category in Hupa that may correspond to "customary" in Chipewyan. If these correspondences are considered to be notational variations, Li and Golla agree in treating the derivationally related verb forms as dif-

ferent themes, rather than different grammatical forms of the same theme. Incidentally, Hoijer's (Sapir and Hoijer 1967) "aspectival stem sets" correspond to Li's "mode" forms, implying that each set represents a separate theme.

The status of verb theme is quite different in Kari's elaborate analysis of theme derivation in Ahtna. What Li discusses as "modes" for Chipewyan, Golla as "theme systems" for Hupa, and Hoijer as "stem sets" for Navajo, Kari discusses what he calls "aspectual stem variation" for Ahtna. In defining "verb theme" with an example 'eat O,' Kari (1979:30) states that: "The verb theme is the underlying *lexical* specification and the common structural denominator that underlies *all attested derivations* for 'eat O.' (italics mine)." "All attested derivations" include forms in different derivational aspects (e.g., momentaneous, durative) as well as forms in different voices (e.g., passive, causative) among others which have the basic lexeme 'eat O.' In other words, Kari views that verbs that are derivable from the same root through aspectual derivations represent the same theme, not different themes, which is to say that Kari's Ahtna verb theme is much more general lexically as well as grammatically, so that one cognate theme in Ahtna corresponds to two or more different (but derivationally related) themes in Chipewyan, Hupa, and Navajo.

The preceding brief review is intended to clarify the status of verb theme, which is the central notion for the analysis of the verb. The differences observed in this review occur partly because of the structure of the language to be analyzed and partly because of the total analytical framework, in which verb theme constitutes a part. Kari's approach makes good sense, given the derivational regularity of the "aspectual strings" in Ahtna. Chipewyan appears to be close to Ahtna in this regard. Sarcee has a fair amount of derivationally related stem sets (see 5.50), which are examined from a historical perspective, bearing in mind Kari's proposal for Ahtna.

It should be emphasized that the terms "verb" and "theme" are often used interchangeably in Athapaskan literature. In this book, they are used interchangeably where the context makes a distinction unnecessary; otherwise, the term "verb" is used as a more general term where theme derivation is irrelevant, whereas the term "theme" is used as a derivationally sensitive term, which implies subcategories of the verb.

5.42. *Derived Themes vs. Modified Themes.*

Before discussing subcategories of themes, it is necessary to clarify the status of verb theme from another derivational point of view. Consider the following sets of verbs, all of which are based on an active stem set of a

classificatory verb, whose paradigmatic aspect forms are: -ʔ*òh* (A), -ʔ*ón* (B), -ʔ*óɬ* (C), and -ʔ*ōtc* (D) 'to handle a solid object.'

(4)	a. nànīsʔòh	←	$nà_{11}$-$Ø_7$-ni_3-s_2-$Ø_1$-ʔòh	'I'll put it down.'[3]
	b. nànīsʔó	←	... -ʔón	'I've put it down.'
	c. nìnácʔōtc	←	$nà_{11}$-$ná_{10}$-$Ø_7$-$Ø_3$-s_2-$Ø_1$-ʔōtc	'I keep putting it down.'
(5)	a. nádīsʔòh	←	$ná_{11}$-$Ø_7$-di_4-$Ø_3$-s_2-$Ø_1$-ʔòh	'I'll pick it up.'
	b. nádìsīsʔó	←	... $-si_3$ ...-ʔón	'I've picked it up.'
	c. nánádìcʔōtc	←	... $-Ø_3$...-ʔōtc	'I keep picking it up.'
(6)	a. xádìsʔòh	←	$xá_{11}$-$Ø_7$-di_4-$Ø_3$-s_2-$Ø_1$-ʔòh	'I'll take it off.'
	b. xádìsīsʔó	←	... si_3- ...-ʔón	'I've taken it off.'
	c. xádìyìsʔóɬ	←	... yi_3-...-ʔóɬ	'I'm about to take it off.'
	d. xádìcʔōtc	←	... $Ø_3$-...-ʔōtc	'I take it off now and then.'
(7)	a. tádīsʔòh	←	$tá_{11}$-$Ø_7$-di_4-$Ø_3$-s_2-$Ø_1$-ʔòh	(A) 'I'll lift it.'
	b. tádīsísʔó	←	... si_3- ...-ʔón	(B) 'I've lifted it.'
	c. tádìyísʔóɬ	←	... yi_3-...-ʔóɬ	(C) 'I'm lifting it.'
	d. tānádìcʔōtc	←	$tá_{11}$-$ná_{10}$- ... -ʔōtc	(D) 'I keep lifting it.'

The C forms are not attested for (4–5). The conjugation marker is *ni-* (A)/*ni-* (B) for (4) and Ø/*si-* for the rest in which *di-* (inceptive) also occurs. In the three sets of verbs (5–7) which are marked by the same conjugation marker plus *di-*, it is clear that the semantic difference is attributable to the different adverbial prefixes in position 11. That these prefixes do not constitute part of the theme but modify it is indicated further by the progressive paradigm given in (8) as well as other verb themes that are modified by these prefixes as shown in (9).

(8) a. yīs?ół ⟵ Ø$_7$-γi$_3$-s$_2$-Ø$_1$-?ół 'I'm carrying it.'
b. yá?ół ⟵ Ø$_7$-γi$_3$-ni$_2$-Ø$_1$-?ół 'You're carrying it.'
c. yá?ół ⟵ γi$_7$-γi$_3$-Ø$_2$-. . . 'He's carrying it.'

(9) a. *nà*nìsgās (cf. 4a) 'I'll brush it down.'
*nà*nīstíh (cf. 4b) 'I've put him down.'
b. *xá*ctc'ùł (cf. 6a) 'I'll pluck it off (hair).'
*xá*yìsùw (cf. 6b) 'I've scraped it off.'
c. *tá*yístsús (cf. 9a) 'I'm holding it (blanket) up.'
*tá*yīs?ół (cf. 8a) 'I'm holding it.'

A theme may be modified by more than one adverbial element in position 11 or by a postpositional construction. The verbs in (10) are identical to those in (4) both in form and meaning except the presence of *kà-* in (10) which accounts for the semantic difference.

(10) a. nàkànīs?òh ⟵ nà-kà$_{11}$-Ø$_7$-ni$_3$-s$_2$-Ø$_1$-?òh 'I'll lower it down.'
b. nàkànīs?ó ⟵ . . . -?ón 'I've lowered it down.'
c. nàkàyīs?ół ⟵ . . . γi$_3$-. . . -?ół 'I'm carrying it down.'
d. nàkàc?ōc ⟵ . . . Ø$_3$-. . . -?ōc 'I carry it down now and then.'

The process of theme modification by the incorporated postpositional construction in position 12 is illustrated by the three sentences below:

(11) a. míts'ìdá?òh ⟵ mi-ts'ì$_{12}$-Ø$_7$-di$_4$-Ø$_3$-ni$_2$-Ø$_1$-?òh
him-to
'Take it to him!'
b. síγá ts'ìdá?òh ⟵ siγá ts'ì$_{12}$- . . .
my-son to
'Take it to my son!'
c. tú ts'ì dìyàlà ⟵ tú ts'ì di$_4$-Ø$_3$-Ø$_2$-Ø$_1$-yā$_0$-là
water to she-went 'She went to water.'

The postpositional construction in (11c) is an independent constituent of underlying VP. Note that the NP of PP is not pronominalized, nor is the postposition incorporated into the verb. In (11b) the NP of PP remains as an independent word while the postposition is incorporated (phonologically) into the verb. In (11a) the incorporated PP has no independent NP other than a pronominal prefix. The condition under which the incorporation takes place is not fully explored here, but pronominalization is apparently involved in this process. In any case, the verb theme in (11a–b) is the same as those in (4–8), which is modified by a postpositional construction, either independent or incorporated.

The process of theme modification discussed above is distinct from the process by which a new theme is derived. The derived theme is a secondary one, derived from the basic or primary theme. As illustrated below, the primary and the secondary themes differ formally and semantically, although they are related by virtue of having the same stem (or root, to be more precise). Consider the three sets of verbs below which represent a derived theme modified by three different elements in (12) or (13).

(12) a. kútsìst'òh ⟵ kú$_{11}$-tsì$_9$-Ø$_3$-s$_2$-d$_1$-?òh 'I'll put my head in.'
b. kútsìyīst'ó ⟵ kú$_{11}$-tsì$_9$-γi$_3$-s$_2$-d$_1$-?ón 'I've put my head in.'

(13) a. dátsìst'òh ⟵ di-á$_{12}$-tsì$_9$-Ø$_3$-s$_2$-d$_1$-?òh 'I'll rub my head (against something).'
b. dátsìyīst'ó ⟵ di-á$_{12}$-tsì$_9$-γi$_3$-s$_2$-d$_1$-?ón 'I've rubbed my head.'
c. mátsìyīst'ó ⟵ mi-á$_{12}$-tsì$_9$-γi$_3$-s$_2$-d$_1$-?ón 'I've rubbed my head against it.'

(14) a. dígá tsìdíníst'òh ⟵ dígá tsì$_9$-dini$_4$- Ø$_3$-s$_2$-d$_1$-?òh
'I'll turn my head.'[4]
b. dígá tsìdínísíst'ó ⟵ . . . si$_3$-. . . -?ón
'I've turned my head.'
c. dígá nátsìdīnīst'ōc ⟵ . . . ná$_{10}$-. . . -t'ōc
'I keep turning my head.'

The morphological difference of this derived theme (in comparison to the primary theme) is marked by the incorporated noun stem (*tsì* 'head') and the d-classifier. Apart from this morphological difference, as well as its apparent semantic difference, the secondary theme is paradigmatically different, since it is a reflexive and pseudotransitive verb in that it requires the subject and object to be coreferential. That is, this derived theme does not occur in a sentence where the subject and object are not coreferential. Where the subject and object are not coreferential (e.g., 'x puts y's head in,' 'x rubs y's head'), the primary theme which is truly transitive occurs. Consider the following:

(15) a. mítsì dígá dìnìsís?ó 'I turned his head.'
his-head I-turned-it
b. sítsì dígá dìnìsís?ó 'I turned my head.'
my-head
cf. dígá tsìdìnìsít'ó 'I turned my head.'

Notice that the primary theme (which is not reflexive) can be used whether the two noun phrases are coreferential or not and that the noun incorporation takes place only if the two noun phrases are coreferential. This means that the reflexive theme is accountable by a rule of transformation which incorporates the object noun into the prefix complex. This explains the paradigmatic asymmetry of the reflexive theme. In other words, the primary theme is distinguished morphologically from the derived theme, but syntactically there is only one verb theme where the surface difference is accountable by a rule of incorporation and the semantic difference by different underlying object NP's.

With regard to the morphological characteristics of the derived theme, it should be pointed out that the derived theme enjoys the same privileges of theme modification as the primary theme does, as indicated by such adverbial elements as *kú-* and *dígá* in the above examples. This, of course, means that the process of theme derivation precedes the process of theme modification.

Only one type of theme derivation is discussed here to illustrate theme derivation vs. theme modification on the one hand, and primary theme vs. secondary theme on the other. Other types of theme derivation and grammatical relationship between derivationally related themes are discussed in later sections and chapters.

5.43. Theme Categories.

Kari's (1979) model is an attempt primarily to account for the predictable variations of the Ahtna verb stem according to "aspect" (i.e., thematic aspect), each subcategory of which is manifested formally by distinct "aspectual strings" that also mark "modes" (i.e., paradigmatic aspect). In this sense, Kari's approach is essentially identical to that of Li's. The significant difference, however, is that Kari develops the notion "theme category" as the main feature of subcategorization, by which the range of aspectual derivation for a given verb theme is determined. Since this concept is central to his analytical framework that significantly bears upon Athapaskan verb morphology generally, some details of the model are scrutinized in the following paragraphs.

Kari's model consists of three stages of derivation. The first is the *lexicon,* in which the underlying verb theme is defined (thematic prefixes + root + theme category). The second stage is called *derivation,* in which mode/aspect categories are determined and in which what Kari calls "nonaspectual derivation" (including iterative, causative, and passive derivations) takes place (at this point the "base" is derived). The third stage is called *inflection,* in which gender, person, and "mode-negative" are determined. These three stages are further subdivided into nine levels, which specify the order in which the derivational process proceeds.

This model, however, is not as easy to understand as the flow chart (p. 59) might suggest. The difficulty is due in part to the different interpretations of the basic Athapaskan terms such as "theme" (as clarified above) and "base," as well as the discrepancy of usage between the flow chart and text, and in part to the different use of some general linguistic concepts such as "inflection" and "derivation."

As mentioned in an earlier section the status of classifiers has not been well defined in Athapaskan literature, and Kari's model is no exception. In his flow chart, the classifier is not specified as a constituent of the underlying verb theme, perhaps because the causative and passive derivations, which involve change of the classifier, take place in the second stage (derivation). On the other hand, specification of verb themes (e.g., 'eat O' p. 31) which are shown with a classifier and his statement "The very simplest verb themes have a root and a ∅ classifier," (p. 71) clearly indicate that the classifier is a constituent of the verb theme. Kari also mentions that the thematic material includes gender specification as well as transitivity, but the flow chart does not specify these in the representation of the verb theme. In fact, the gender specification is treated as an inflectional process in the flow chart.

The base in Kari's model is specified not only with the thematic aspect, but also with the paradigmatic aspect (and mode) which has been considered traditionally an inflectional category. On the concrete morphological level, the paradigmatic aspect cannot be separated from the thematic aspect, and it may be a realistic solution to treat these two categories of aspect together, although it is misleading to treat either or both as a derivational category. Furthermore, the causative and noncausative pairs, as well as the active and passive pairs, are all considered to represent the same (underlying) verb theme. This, of course, makes sense from a generative point of view, although his cannot be viewed a strictly formal generative model.

The most remarkable and insightful feature of Kari's model is the assignment of "theme category" to the underlying verb theme. This categorical

assignment is motivated primarily by the possibility of predicting potential aspectual variations for a given verb theme. For example, Kari claims that four subcategories of aspect (perambulative, reversative, persistive, and continuative), among others, are found only in motion themes. In other words, the theme category "motion" predicts derivational potential of "aspectual strings." It should be mentioned that there is no independent morphological form that marks a particular theme category; rather, the theme category is the characteristic of a verb, which is manifested in the aspectual variation. This is essentially what Golla observed in Hupa; the motion themes of that language include four semantically and formally related theme sets, as exemplified by the analysis of a classificatory verb.

Golla's subcategorization of verbs is based on two dimensions. First, theme types and subtypes specify the inflectional potential; for example, the intransitive theme type undergoes subject inflection only, the transitive theme types undergo both subject and object inflection, the impersonal theme undergoes neither subject nor object inflection, and so forth. Second, theme systems and subsystems characterize derivational potential. For example, the descriptive theme system includes "adjectival classes" from which "transitional themes" are derived. The motion theme system has the four subsystems mentioned above which characterize derivational processes by which secondary themes (e.g., passive or reflexive) may derive from primary themes. Other examples could be cited. Golla's two other major theme systems are the action-theme system and the extension-theme system. This latter dimension of subcategorization, that is, the subcategories of theme system, corresponds to the theme categories of the Ahtna verb. Although the two approaches to the subcategorization of verb themes are motivated differently—Golla by the formal and semantic relationships between the primary theme and the derived secondary theme, and Kari by the aspectual variation—there is as indicated by the nomenclature of subcategorization a good deal of similarity between the two.

This similarity appears to be no accident. In presenting ten Ahtna theme categories, which include four active categories (motion, successive, operative, conversive) and six neuter categories (extension, stative, positional, classificatory, descriptive, dimensional), Kari further claims that these Ahtna categories reflect "the core of the PA theme category system" (p. 63). Although Hupa and Sarcee, among others, do not have a system of aspectual variation as remarkable as in Ahtna, the subcategorization of themes based on other structural features suggests that regardless of the degree of "levelling" in stem variation, the basic characteristics of the old system is still retained in contemporary Athapaskan languages. Kari's study of Ahtna verb morphology is most stimulating in this regard and provides useful clues to the analysis of other languages in a comparative perspective. As shown below, although Sarcee does not retain stem sets as much as does Chipewyan or Navajo (not to mention Ahtna), it still has a good deal of apparent residue of stem-set variation and lexical sets, suggesting that a once-productive derivational process (i.e., stem variation) has been lexicalized.

5.50. SUBCATEGORIZATION OF THE SARCEE VERB.

A thorough subcategorization of the Sarcee verb is beyond the scope of this study, but each of the preliminary categories presented in this section is recognized for some structural and semantic characteristics. Although this classification is strictly synchronic without prejudice to a diachronic view, some categories undoubtedly reflect what must have been Proto-Athapaskan characteristics.

The two most general categories of the verb that have long been recognized in Athapaskan are the active and the neuter verb. The two distinct morphological characteristics that distinguish these two subcategories include the nature of the aspectual paradigm or paradigms that a verb theme may derive (with or without stem set variation) and the inflectional behaviour of each aspectual paradigm. Another subcategory that has been well known for Athapaskan is the so-called classificatory verbs. The classificatory verbs are discussed in the subsection immediately following. The subcategories of the active verbs are discussed in terms of verb theme categories in the subsequent four subsections, and the neuter verbs are considered in the last subsection of this chapter.

5.51. Classificatory Verbs.

The classificatory verbs as a unique subcategory have long been recognized, as indicated by several research papers on this topic (e.g., Hoijer 1945, Carter 1976). Eight such verbs exist in Sarcee. Each verb consists of two sets of stems (one has four; see [16a]), one in the neuter theme and the other in the active theme. Each neuter stem set consists of the imperfective (A) and perfective (B), and each active set consists of the progressive (C) or iterative (D), as well as A and B. The complete stem list is given below; the first of each pair is the neuter and the second is the active:

(16)

	A	B	C	D
a. sg. animate being	-tíh	-tàh		
	-tàh	-tín		
	-tàh	-tíh	-tát	-tātc
	-tàh	-tà?	-tāt	-tātc
b. sg. solid object	-?ón	-?òn		
	-?òh	-?ón	-?ót	-?ōtc
c. sg. long object	-tón	-tòn		
	-tìh	-tón	-tīt	-tītc
d. sg. dish	-kón	-kò?		
	-kòh	-kón	-kót	-kōtc
e. grain-like object	-?djāj	?		
	-dzáh	-djàj(dj-)	?	?
f. sg. fabric-like object	-tsùz	-tsùz		
	-tsús	-tsùz	-tsús	-tsūc
g. pl. animate being	-táz	-táz		
	-tàs	-táz (dz-)	-tìc	-tìc
h. a rope or	-ló	-lò?		
pl. inanimate beings	-ló	-ló	-lót	-lótc

The verb has to be specified with respect to number and gender to account for the co-occurrence restrictions between the noun phrase (which also has to be subclassified accordingly) and the verb in a sentence. The number and gender specification is further complicated by the fact that some gender distinctions in inanimate classes are neutralized in the plural form of the verb.

The first classificatory verb (16a) is represented by four sets of stems. The neuter set is represented in (17–18) below, which is distinguished by the classifier:

(17) a. sīstíh ⟵ si -s -Ø -tíh (A) 'I'm lying, sleeping.'
b. yīstàh ⟵ γi -s -Ø -tàh (B) 'I was lying, sleeping.'

(18) a. sīstíh ⟵ si -Ø -s -tíh 'It (e.g. a dead body) is lying.'
b. yīstàh ⟵ γi -Ø -s -tàh 'It was lying.'

These two sets of verbs are identical on the surface, but they have different morphological structures. All the neuter paradigms of the classificatory verb inflect for A and B only, which are marked by the respective stem forms as well as the aspect prefixes, *si-* and *γi-* respectively. These prefixes

are the only conjugation markers for the neuter. The occurrence of *si-* in the imperfective is a characteristic of the neuter theme, since *si-* does not regularly occur in other imperfective themes,[5] whereas *γi-* occurs in other perfective themes.

The lack of C and D forms in the paradigm is another characteristic of the neuter theme. The periphrastic use of another verb (i.e., embedding) is obviously a syntactic device to make up this paradigmatic gap, for example, *sītíní gúdìnīc* 'that he is lying keeps happening = he is always lying around.'

Another stem set comparable to the neuter set is found in an active theme 'to dream.' Like the stem set in the neuter themes, the stem varies only for A and B (*-tàh*, *-tín*)[6], but the thematic element includes a disjunct prefix, $nà_{11}$#. The conjugation markers are $Ø_3$- for the imperfective and si_3- for the perfective, while the classifier is zero.

(19) a. nàs*tàh* 'I'm dreaming/am going to dream.'
nàsīs*tí*(n) 'I dreamt.'
b. nànī*tàh* 'You dream.'
nàsī*tí*(n) 'You dreamt.'
c. nà*tàh* 'He is dreaming/going to dream.'
nàsī*tí*(n) 'He dreamt.'

This theme is interesting particularly from a historical-comparative point of view. Li (1946) analyzed the Chipewyan cognates as the "continuative" forms, one of five "modes" (i.e., thematic aspects), which are marked by five distinct stem sets. Putting terminological differences aside, this analysis of Chipewyan is essentially comparable to Kari's analysis of Ahtna verb themes. It fits a language in which aspect derivation is productive (as in Ahtna) and in which the inflection of each stem set for paradigmatic aspect is regular (e.g., Kari shows three paradigmatic forms for each aspectual paradigm [thematic aspect] in Ahtna and Li shows three paradigmatic forms for each "mode" in Chipewyan). The above Sarcee stem set is revealing indeed from an historical point of view, although it is not immediately clear whether a similar analysis should be accorded to the Sarcee data in the absence of a more productive derivational pattern.

A third set of stems given in (16a) occurs in the following active theme, apparently a momentaneous paradigm:

(20) a. -tàh (A)
nīstàh ⟵ ni_4-$Ø_3$- s_2-$Ø_1$-tàh 'I'll lie down.'
nítāh ⟵ ni_4-$Ø_3$-ni_2-$Ø_1$-tàh 'you...'
nītàh ⟵ ni_4-$Ø_3$- $Ø_2$-$Ø_1$-tàh 'he...'

b. -tín (B)

nīsīstí(n)	← ni_4-si_3- s_2-$Ø_1$-tín	'I've lain down and am now lying.'
nīsítí(n)	← ni_4-si_3-ni_2-$Ø_1$-tín	'you...'
nīstí(n)	← ni_4-si_3- $Ø_2$-$Ø_1$-tín	'he...'

c. -tát (C)

nīyīstát	← ni_4-γi_3-s_2-$Ø_1$-tát	'I'm about to go to sleep.'
nátát	← ni_4-γi_3-$Ø_2$-$Ø_1$-tát	'he...'

d. -tātc (D)

nánīctātc	← $ná_{10}$-ni_4-$Ø_3$- s_2-$Ø_1$-tātc	'I lie down several times.'
nánítātc	← $ná_{10}$-ni_4-$Ø_3$-ni_2-$Ø_1$-tātc	'you...'
nánītātc	← $ná_{10}$-ni_4-$Ø_3$- $Ø_2$-$Ø_1$-tātc	'he...'

This set of stems is most productive in theme derivation and modification, since it is seen in various forms of transitive theme, which is marked by the *s*-classifier. For the purpose of comparison, three sets of partial paradigms of a transitive counterpart are presented as follows:

(21) cf. (4)

a. nànīs*tàh*	'I'll put him down.'
b. nànīs*tíh*	'I've put him down.'
c. nìnác*tāc*	'I keep putting him down.'

(22) cf. (6)

a. xádīs*tàh*	'I'll bring him out.'
b. xádīsīs*tíh*	'I've brought him out.'
c. xádīyìs*tāɬ*	'I've just about brought him out.'
d. xádīc*tāc*	'I bring him out now and then.'

(23) cf. (5)

a. nádìstàh	'I'll pick him up.'
b. nádìsīstíh	'I've picked him up.'
c. nánádìctāc	'I keep picking him up.'

The difference between the intransitive theme (20) and the transitive counterpart (21–23) is marked by the classifier: Ø for the intransitive and *s*- for the transitive. It should also be noted that three sets of transitive verbs (21–23) represent the same theme which is modified by the position 11 prefixes, in the same way as the transitive theme as presented in (4–8).

The most interesting stem set from an historical point of view is the fourth in (16a). This set is identical to the third except for the B form. I have not been able to elicit this set (recorded by Sapir) from contemporary speakers. The verbs in (24) are from Sapir's notes, and I have recorded the same forms except the perfective in which the stem is *-tín* instead of *-tàʔ*, which means the stem set in (24) is identical to the third set discussed above. This change is apparently due to analogical pressure of the third set which is most productive.

(24)

a. tɬāādínīs*tàh*	'I'll fall asleep.'
b. tɬāādínìsìs*tàʔ*	'I fell asleep.'
c. tɬāādínīyìs*tāɬ*	'I'm falling asleep.'
d. tɬānáádínīc*tāc*	'I keep falling asleep.'

All the classificatory verbs in Sarcee have at least two sets of stems: one in the neuter paradigm and another in the active paradigm(s). Only one of the classificatory verbs has three sets of stems in three distinct active paradigms. There is no other verb that has so many stem sets as (16a), although several other active verbs have two sets of stems used in two or more distinct aspectual paradigms. Nevertheless, neither the extent in which stem sets vary nor the degree of phonological regularity involved in the thematic aspect paradigms is comparable to those in Ahtna and other Northern Athapaskan languages reported by Kari. If Ahtna retains the prototype of an aspect system, Chipewyan has a system similar to it, while Sarcee has lost a great deal of productivity. A question to bear in mind for the remainder of this chapter is whether there are synchronically justifiable patterns for aspect variations marked systematically by stem variations. An answer to this question will ultimately determine whether the neuter and active paradigms as observed in the classificatory verbs and other similar sets of verb paradigms should be treated as different themes or as different aspect paradigms of the same theme.

5.52. Motion themes.

From a strictly synchronic point of view, the morphological characteristics of the classificatory verbs include (i) the neuter vs. active stem set variation, (ii) the paradigmatic regularity of each stem set (i.e., the neuter set inflects for A and B, and the active set inflects fully), and (iii) the number and gender categories inherent within each stem set. With these general charac-

teristics, the classificatory verbs are considered a subcategory of the motion theme category.

I am not sure yet what exactly constitutes the properties of the motion theme in Sarcee, but a great many active verbs reveal the characteristics mentioned above. With respect to the neuter/active stem set variation, it is worth one's while to examine the two verbs related in number, that is, 'sg sit' and 'pl sit.' These are not treated as classificatory verbs (nor are the cognates in other languages).

Like the classificatory verbs in (16), the number category is inherent in each form, and the stems are in two distinct sets, one for the neuter and another for the active.[7] The following shows this pattern:

(25) 'sg sit'

a. Neuter -dó (A), -dò? (B)

sísdó	'I'm sitting/seated.'	yísdò?	'I was sitting/seated.'
sídó	'He is sitting/seated.'	yídò?	'He was sitting/seated.'

b. Active -dò (A), -dó (B), -dół (C), -dōtc (D)

nísdò	'I'll sit down.'
nīsísdó	'I've sat down.'
dìnìyìsdół	'I'm just about to sit down.'
nánìcdōtc	'I sit down now and then.'

(26) 'pl sit'

a. Neuter -ts'í (A), -ts'ì? (B)

dísáàts'í	⟵	di_5-si_3-aad_2-l_1-ts'í	'We are seated.'
gídīsts'í	⟵	gi_6-di_5-si_3-l_1-ts'í	'They are seated.'
díyáàts'ì?	⟵	di_5-γi_3-aad_2-l_1-ts'ì?	'We were seated.'
gídīyíìts'ì?	⟵	gi_6-di_5-γi_3-l_1-ts'ì?	'They were seated.'

b. Active -ts'ìh (A), -ts'íh (B), -ts'íł (C), -ts'ītc (D)

dínáàts'ìh	⟵	di_5-ni_4- $\emptyset_3$-aad_2-l_1-ts'ìh	'We'll sit down.'
gídíníìts'ìh	⟵	gi_6-di_5-ni_4- $\emptyset_3$- l_1-ts'ìh	'They'll sit down.'
dínīsáàts'íh	⟵	di_5-ni_4-si_3-aad_2-l_1-ts'íh	'We've sat down.'
gídínīsts'íh	⟵	gi_6-di_5-ni_4-si_3- l_1-ts'íh	'They have sat down.'
dīnīyáàts'íł	⟵	di_5-ni_4-γi_3-aad_2-l_1-ts'íł	'We're just about to sit down.'
nádīnààts'ītc	⟵	$ná_{10}$-di_6-ni_4-$\emptyset_3$-aad_2-l_1-ts'ītc	'We sit down now and then.'

Two general statements can be made of the paradigmatic patterns of these two sets of themes: for the neuter, the stem inflection is limited to A and B which are marked by prefixes *si-* and *γi-* respectively; for the active the stem inflects fully, but the aspect prefixes that mark the conjugation for A and B are not just zero and si_3- which happens to be the case for the examples cited in (25–26). Other conjugation markers, such as *Ø/si-* and *Ø/γi-*, are also found in many other active verbs of the motion theme category, including the classificatory verbs. On the other hand, not all active verbs that are considered to be motion themes have paired stem sets. While it is feasible to classify the classificatory verbs and the two verbs discussed above into a separate category of themes or a subcategory of the motion theme, I shall assume that the paradigmatic potential for the active stem to inflect fully is a characteristic of the motion theme in Sarcee, in contradistinction to other active themes, whose stem inflection is limited to A and B or A, B, and D.

One of the characteristics of the motion theme category noted in other Athapaskan languages (e.g., Navajo, Ahtna, Chipewyan) is the availability of separate stem sets for different thematic aspects, of which the momentaneous aspect is considered to be basic or primary. While the system of aspect derivation involving stem set variation in Sarcee is not as elaborate as in other languages noted above, the occurrence of various aspect prefixes for A and B (e.g., conjugation markers) in the motion theme category is comparable to those languages. As shown in 5.51, the most common types of aspect prefixes for A and B which occur in the classificatory verbs are *ni-/ni, di-Ø/di-si-,* and *Ø/γi-*. The latter two pairs and *Ø/ni-* instead of *ni-/ni-* are the most common conjugation markers found in non-classificatory motion themes of Sarcee. Of these three pairs, the inceptive pair (*di-Ø/di-si-*), which occurs in the unmodified themes, is another characteristic of the motion theme category. The distribution of these conjugation markers are illustrated by the following examples:

(27) a. di-Ø (inceptive imperfective) in A

ts'idiyáh	⟵ ts'i_6-di_4-$\emptyset_3$-$\emptyset_1$-yáh	'He's going to walk.'
ts'īdít'òs		'They (dual) are going to walk.'
ts'īdídàł		'They (pl) are going to walk.'

b. *di-si* (inceptive perfective) in B

dīcīcō	⟵ di_4-si_3-s_2-$\emptyset_1$-yā	'I walked (reference to starting).'
dīsīst'òy		'I flew.'
dīsīstł'ò		'I ran.'

c. Ø (imperfective) in A vs. ni- (perfective) in B

nàyáh	vs. nà*ní*yà
'He'll arrive.'	'He arrived.'($nà_{11}$# 'home')

	nàgít'òs	vs. nàgī*nít*'óz
	'They (dual) will arrive.'	'They have arrived.'
	nàgídàł	vs. nàgí*ní*dál
	'They (pl) will arrive.'	'They've arrived.'
	nàdús	vs. nà*ní*dúz
	'He'll creep home.'	'He's crept home.'
d.	(di-)Ø (imperfective) in A	vs. γi- (perfective) in B
	kúdìyáh 'He walks in.'	vs. kúyíyà 'He went in.' ($kú_{11}$# 'in')
	xàyáh 'He'll go out.'	vs. xàyíyà 'He went out.' ($xà_{11}$# 'out')

These conjugation markers which occur in a set of aspectual paradigms that are available for the motion theme category as well as the restrictive distribution of adverbial prefixes (position 11) suggest that the range of aspectual derivation is predictable by the specification of theme category (as proposed by Kari for Ahtna) and the range of theme modification is governed, at least in part, by the individual thematic aspect.

Another category of prefixes whose alternation might be governed by the nature of theme category are the 3sg object prefixes. The alternating forms are Ø, *mi-*, and *i-*, all of which alternate with *γi-*, which occurs only if the subject is also in the third person. What has not been well understood is the alternation among the first three forms. In all the transitive verbs of the motion theme discussed in the preceding subsections, the specified 3sg object prefix is unmarked, that is, zero. On the other hand, *i-* and *mi-* alternate in a predictable way in the transitive verbs of the succession theme category to be discussed in the immediately following subsection.

5.53. Succession Themes.

This category of theme is named after Kari's "successive" themes of Ahtna, the semantic characteristic of which is definable by any sort of quick bodily action that may be repeated in succession, for example, hitting, kicking, or pushing. Unlike the typical lexical item of the motion theme category, the succession theme is not marked with respect to number or gender in individual verb stems. Aside from the semantic characteristic, there are distinct formal characteristics that define this category. As mentioned in the preceding subsection, one of the paradigmatic characteristics of the motion theme is the potential for the verb stem to inflect fully. The stem forms of the succession theme category are distinguished by the conspicuous absence of the progressive form (C) on the one hand, and the presence of an alternate perfective form (B) in at least three verbs, for example,

(28)		A	B	D
a.	'to hit (with a fist)'	-gúł	-gúl(dl-) -gúłt	-gúłtc
b.	'to strike (with a club)'	-γòł	-γìl(tł'-) -γòłt	-γòłtc
c.	'to kick'	-ʔás	-ʔàz(dz-) -ʔìst -ʔàts	-ʔìc

Li's stem list contains the progressive form ("continuative" in his terminology) for each of these stems. It turns out that what Li considered to be the continuative stems in (28a–b) are the imperfective stems of the seriative paradigm. Note the second B forms, which are distinguished from the respective A forms by the final *-t*, which (as Leer (1979) pointed out) is the semelfactive perfective suffix. In the succession theme, the unmarked thematic (inherent) aspect is seriative (i.e., a series of quick actions), and the marked (by *-t*) aspect is semelfactive (i.e., a single blow). It is, therefore, not surprising how a seriative aspect can be easily mistaken as a continuative or progressive aspect. It is also quite obvious how a verb cannot be semelfactive *and* progressive at the same time (i.e., the absence of C), considering the semantic incompatibility of the two aspect categories.

The semelfactive suffix (*-t*), however, has virtually disappeared from contemporary Sarcee. I have heard *-gúłt, -γòłt,* and *-ʔìst* from one of the oldest speakers; however, she never used the semelfactive forms in her unsurreptitious and more articulate pronunciation. Particularly interesting is *-ʔìst* which Sapir did not record; instead he recorded *-ʔìs* as in *yíyìsʔìs* 'he pushes it right along' (Notebook vol. II.15a). Li listed this stem as an alternate "continuative" stem. In my analysis this stem is an alternate perfective stem which occurs in the seriative paradigm (see below).

Where the semelfactive perfective suffix still remains, the succession theme is characterized by three distinct thematic aspects. Of the three thematic aspects exemplified below, the momentaneous is semantically neutral (i.e., unmarked) with respect to the restrictive semantic feature inherent in the seriative (e.g., a series of punches) or to the feature marked (by *-t*) in the semelfactive (e.g., a single punch).

(29) Momentaneous (ni_3-/ni_3-)

a.	ìnìsgúł	'I'll punch him.' ($ì_7$- 'him')
	sìnìsgúł	'He'll punch me.' ($sì_7$- 'me')
	ìnísgúl	'I've punched him.'
	sìnísgúl	'He's punched me.'

(30) Semelfactive (si-perfective)

a. No imperfective forms are attested.

b. sīsgúɬt	'I punched him (once).'	($Ø_7$- 'him')
sīsgúɬt	'He punched me (once).'	(si_7- 'me')[8]
ìdìsgúɬt	'He punched himself.'	($idì_7$- 'oneself')

(31) Seriative ($Ø_3$-/$γi_3$-)

a. *mí*sgúɬ	'I am punching him.'	($mí_7$- 'him')
*sí*sgúɬ	'He's punching me.'	($sí_7$- 'me')
b. *mí*γīsgūl	'I've been punching him.'	
*sí*γīsgūl	'He's been punching me.'	

There are several structural differences among the three sets of paradigms shown above. First of all, there are three sets of conjugation markers, one for each paradigm. Although the stem sets of the momentaneous and seriative are identical, the object prefixes are different. The 3sg specified object prefixes are *i-, mi-,* and Ø in the momentaneous, seriative, and semelfactive respectively. The aspectual differences are not the only condition for the alternation, nor is the alternating condition fully understood, but the alternation is consistent in other succession themes. Another very interesting feature associated with this alternation is the high tone on all object prefixes in the seriative paradigm.

As for the conjugation markers, *ni-*/*ni-* and Ø/γ*i-* are used in the momentaneous and seriative paradigms respectively, and *si-* (perfective) is found in the semelfactive. These conjugation markers clearly contrast with those in the motion theme category in more ways than one. First of all, the inceptive prefix (*di-*) is not found in the unmodified primary theme of the succession theme category. Second, both *ni-*/*ni-* and Ø/γ*i-* are found in the unmodified theme.

The majority of the succession themes do not have a semelfactive perfective suffix, but the same conjugation patterns (aspect and object prefixes) as observed in (29–31) characterize the thematic aspects of the succession theme. The two sets of partial paradigms in (32–33) further illustrate the paradigmatic differences between the unmarked momentaneous paradigm (a) and the marked seriative paradigm (b).

(32) -gùs (A), -gúz/gúts' (B), -gùc (D) 'to snap'

a. ìnīsgùs	'I'll snap at him.'	($ì_7$- 'him')
ìnīsgúz	'I've snapped at him.'	($ì_7$- 'him')
*sì*nīsgúz	'He's snapped at me.'	($sì_7$- 'me')
	cf. *sì*nīgúts' 'He did snap at me.'	

*cì*cgùc	'He snaps at me now and then.'	
ìcgùc	'I snap at him now and then.'	
b. *mí*sgùs	'I'm snapping at him.'	($mí_7$- 'him')
*mí*γīsgúz	'I've been snapping at him.'	
	cf. *mí*γīsgúts' 'I *have* been snapping at him.'	
*sí*gùs	'He's snapping at me.'	($sí_7$- 'me')

(33) -t'úh (A), -t'ūw (B), -t'ùtc (D) 'to shoot'

a. ìnīst'úh	'I'll shoot at him;'	ìníst'ūw	'I've shot at him.'
ìnáàt'úh	'We'll shoot at him;'	ìnáàt'ūw	'We've shot at him.'
*yì*st'úh	'He'll shoot at him;'	*sì*níst'ūw	'He's shot at me.'
b. *mí*st'úh	'I'm shooting at him.'	*mí*γīst'ūw	'I've been shooting at him.'
*mí*nìst'úh	'You are shooting at him.'		
*sí*st'úh	'He is shooting at me.'		
*gú*st'úhí	'the one who is shooting at somebody' ($gú_7$- 'someone')		
nám*í*st'ùtc	'I shoot at him now and then.'		

In the unmarked (a) sentences, the object prefixes are consistently low-toned, whereas in the marked (b) sentences they are consistently high-toned. Furthermore, the two alternating 3sg forms *i-* and *mi-* are mutually exclusive with respect to the two types of paradigms. As regards the paradigmatic aspects, A and B forms are attested for both the unmarked and marked paradigms. Additionally, the marked paradigm above includes a D form, which may very well be treated as a thematic aspect form rather than a paradigmatic one (see 5.55).

In short, where the semelfactive perfective stem suffix has disappeared, the aspectual difference is now maintained by the two distinct conjugation patterns (i.e., different sets of aspect prefixes and of object prefixes where applicable) and tones on the object prefix. If the momentaneous aspect is a characteristic of the motion theme category, the seriative aspect is a characteristic of the succession theme category.

With regard to the stem sets presented in (28), a second alternate B form is noted for (28c). Unlike *-t,* which survives after root-final *t* and *s,*[9] the affricate that alternates with the fricative in (28c) does not mark an aspect. This alternation, which is also observed in two other B forms (e.g., *-gúz/gúts'* 'to snap,' *-k'ìz/-k'ìts'* 'to jump'), is not observed in the speech of the younger generation, and where it does survive the affricate marks a sort of emphatic mode.

5.54. Duration Themes.

This theme category is quite similar, both semantically and structurally, to the succession theme category, particularly in the transitive verbs. The duration theme category of Sarcee is similar to the "operative" theme category of Ahtna, and Kari expresses difficulty in distinguishing this category from his "successive" theme category. Semantically, a distinction between a series of repeated actions and a punctual action is made in the succession theme, but such a distinction is not available in the duration theme, since the latter refers to the duration rather than to succession or segmentation, for example, crying, smoking, or picking (berries). This semantic difference between the two theme categories is reflected in the aspectual system. In the succession theme, the seriative aspect contrasts with the nonseriative aspect (semelfactive or momentaneous), each having the same derivational status in the sense that neither is a derived or modified theme. In the duration theme, on the other hand, the durative aspect is the only aspect category (with one exception; see below) that is available for the unmodified theme. The intransitive verb 'to cry' best illustrates both the diachronic and synchronic status of this theme category.

The verb 'to cry' is one of a few verbs that retains stem set variation:

(34) 'to cry'

	A	B	D	Aspect Prefixes
a. Durative	-tsīy	-tsày		Ø/γi-
b. Momentaneous	-tsáh	-tsày	-tcītc	di-Ø/di-si, ni-/ni-

Li (1930) treated *-tsīy* as a C form and *-tsáh* as an A form where the two thematic aspects are not recognized. The absence of the progressive form in the durative theme category is probably for the same reason as it is absent from the succession theme category. Consider the three sets of paradigms below:

(35) Durative

	A (Ø or si- imperfective)[10]		B (γi- perfective)	
a.	ìstsīy	'I'm crying.' (*i-* is "peg")	yīstsày	'I cried, was crying.'
b.	nístsīy	'You....'	yítsày	'You....'
c.	ítsīy	'He....'	yītsày	'He....'
d.	ts'ítsīy	'Someone....'	ts'īyìtsày	'Someone....'
e.	īsáàtsīy	'We (pl)....'	γáàtsày	'We (pl)....'
f.	àstsīy	'Ye....'	γāstsày	'Ye....'
g.	gītsīy	'They....'	gīyītsày	'They....'

(36) Momentaneous (inceptive)

	A (Ø- imperfective)		B (si- perfective)[11]	
a.	dīstsáh	'I'm going to cry.'	dīsīstsày	'I've started crying.'
b.	dītsáh	'You....'	dīsítsày	'You....'
c.	dìtsáh	'He....'	dìstsày	'He....'
d.	ts'ìdītsáh	'Someone....'	ts'ìdìstsày	'Someone....'
e.	dáàtsáh	'We....'	dīsáàtsày	'We....'
f.	dāstsáh	'Ye....'	dīsāstsày	'Ye....'
g.	gīdītsáh	'They....'	gīdīstsày	'They....'

(37) Momentaneous (terminative): k'á$_{11}$#...

	A (ni- imperfective)[12]		B (ni- perfective)	
a.	k'ánīstsáh	'I'll quit crying.'	k'ānīstsày	'I stopped crying.'
b.	k'ānítsáh	'You....'	k'ānítsày	'You....'
c.	k'átsáh	'He'll....'	k'ānītsày	'He....'
d.	k'ánáàtsáh	'We....'	k'ānáàtsày	'We....'
e.	k'ánástsáh	'Ye....'	k'ānāstsày	'Ye....'
f.	k'ágítsáh	'They....'	k'āgínítsày	'They....'

	D (ná- iterative)	
a.	k'ánáctcītc	'I quit and cry again.'
b.	k'ánánītcītc	'You....'
c.	k'ánátcītc	'He....'
d.	k'ánáàcààtcītc	'We....'[13]
e.	k'ánáctcītc	'Ye....'
f.	k'ánágītcītc	'They....'

The condition that governs the morphophonemic behaviour of *si-* as an imperfective prefix as well as a perfective prefix is not fully understood. It is reduced to *s* in some perfective paradigms or completely deleted in others only if the subject is third person. As an imperfective prefix it occurs regularly in all forms of a paradigm in the neuter verb, but in the active verb it occurs only if the subject is first person dual or plural. In any case, the durative paradigm marked by the *Ø/si-* imperfective and *γi-* perfective prefixes is the typical aspectual paradigm of the durative theme, which is found in all unmodified duration themes. On the other hand, the other two paradigms are either absent or present in modified themes as (36–37) exemplify. It may be maintained that the inceptive paradigm (36) is in the same status as the durative paradigm, since it is neither derived nor modified. But this paradigm is not available for all unmodified duration themes, nor is it found in

the duration theme category only. The inceptive paradigm, therefore, is not a characteristic of the duration theme category.

Of the two stem sets for the duration theme 'to cry,' the formal difference is noted in the A forms rather than in the B forms, as it is the case for the succession theme. Another duration theme in which a similar stem set variation is observed is the verb 'to sing.' Sapir's data on this verb are treated by Li as two sets of verbs: (i) a transitive verb, *-yí(n)*, *-yìn* and (ii) an intransitive verb, *-djí*(n), *-djīn*, *-djīn*, *-djítc*. The derivational relationship of these two sets of stems is apparent when the initial *dj* is analyzed as *d* (classifier) plus *y* (i.e., d-effect). There are, however, a few problems that need to be straightened out with respect to Sapir's data and Li's entries. First, the y-initial stem is out of use in contemporary Sarcee where the dj-initial stem is used both as an intransitive and transitive verb stem. Second, Sapir's original notes indicate that tone is inconsistently marked. Third, Li's entries erroneously suggest that the final *n* of the A forms in both sets alternate with zero. Instead of *n* there is a final *h* which Sapir recorded but disregarded by both Sapir and Li. As pointed out elsewhere (see Cook 1972), the final *h* is very important, especially from a diachronic point of view.

Putting aside the y-initial stems which could not have been verified by the speakers that I worked with, the dj-initial verb has the following two stem sets:

(38) 'to sing'

	A	B	C
a. Durative	-djīn	-djīn	
b. Momentaneous	-djíh	-djīn	-djīc

Aside from the vocalic ablaut in 'to cry' (34), the patterns of stem set alternation, as well as conjugation patterns in both durative themes, are identical. Another phonological feature to be noted here is the sonorant final in the durative set. At least two other verbs show final *n* in both A and B forms of the durative set. Consider the following:

(39) 'to smell'

	A	B	D	Aspect prefixes
a. Durative	-tsīn	-tsīn		Ø/γi-
b. Semelfactive	tsít	-tsít	-tcītc	Ø/si-

Another interesting phonological feature of this stem set is the final *t* of the semelfactive stem. This *t* is a stem suffix which is underlyingly *t,* and differs

from root-final *d* which becomes *t* in absolute final position.

The semantic contrast between the durative and semelfactive in the duration theme category is parallel to that between the successive and semelfactive in the succession theme category. Like the semelfactive in the succession theme category, the semelfactive of the duration theme category occurs in the basic (unmodified) theme, for example,

(40)

Durative	Semelfactive
a. īstsīn 'I'm smelling it.'	ìstsít 'I'll smell it.'
b. yīstsīn 'I've smelled it.'	sīstsít 'I've smelled (took a smell of) it.'
cf. tɬītsīn 'it smells good' also	náàctcītc 'I smell it now and then.'

Perhaps the most telling (historical) evidence for aspectual stem set variation is provided by the following durative theme in which three distinct stem sets are available for the durative, momentaneous (two subparadigms), and seriative paradigms.

(41)

'to be aware of'	A	B	C	D	Aspect Prefixes
a. Durative	-zīn	-zīn			Ø/γi-
b. Momentaneous	-zíd	-zíd	-zìɬ	-jīc	ni-/ni-, di-Ø/di-si-
c. Seriative	-zīd	-zīd		-jīc	Ø/γi-

One of the characteristics of this theme is that three different thematic elements occur in different aspectual paradigms, for example, *yini*$_5$- in the durative and seriative, *ts'á*$_5$- and *īzáγá*$_5$- in two different momentaneous paradigms. These different thematic elements make it difficult to define the notion "theme" where different paradigms are treated as different aspects rather than different themes. Consider:

(42) Durative: yīnī$_5$-Ø$_1$

	A (Ø$_3$)		B (γi$_3$-)	
a.	yīnīsīn	'I'm thinking'	yīníyìsīn	'I thought.'
b.	yīnínízīn	'You're thinking.'	yīníyízīn	'You thought.'
c.	yīnízīn	'He's thinking.'	yīníyízīn	'He thought.'
d.	yīnāàzīn	'We're thinking.'	yīníγāàzīn	'We thought.'
e.	yīnāsīn	'Ye're thinking.'	yīníγāsīn	'Ye thought.'
f.	gìyìnīzīn	'They're thinking.'	gīyīnīyízīn	'They thought.'

(43) Serative: mi-á$_{12}$#yini$_5$-Ø$_1$

	A (Ø$_3$)	B (di$_4$-γi$_3$)
a.	máyīnísīd	máyīnídìyīsīd
	'I'm thinking about it.'	'I thought about it.'
b.	máyīnínīzīd	
	'You think about it!'	
c.	γáyīnízīd	γáyīnídìyīzīd
	'He's thinking about it.'	'He thought about it.'

(44) Momentaneous: ts'á$_{11}$#. . . Ø$_1$

	A (ni-)		B (ni-)	
a.	ts'ánìsíd	'I'll wake up.'	ts'ánīsīd	'I woke up'
b.	ts'ánízíd	'You. . . .'	ts'ánízīd	'You. . . .'
c.	ts'ázíd	'He. . . .'	ts'ánīzīd	'He. . . .'
	C (γi-)		D (Ø)	
d.	ts'ánáyìzìɬ	'She is waking up.'	ts'ájījlà	'He always wakes up.'

(45) Momentaneous: īzáγáà$_{11}$# . . . Ø$_1$

	A (di-Ø)		B (di-si-)	
a.	īzáγáàdīsíd	'I'll get mad.'	īzáγáàdìsīsīd	'I've got mad.'
b.	-		īzáγáàdìsízīd	'You. . . .'
c.	īzáγáàdìzíd	'He'll get mad.'	īzáγáàdìzīd	'He. . . .'

Presented above are four sets of verbs which I consider to be in the duration theme category. Although there appears to be no simple phonological rule to account for the difference among the apparently related stem sets and the identity of some of the thematic elements are not clear, there is little doubt that these paradigms are related semantically and historically.[14] Whether these different paradigms are to be treated in a synchronic grammar as different themes or different aspectual representations of the same theme is quite another matter, however.

Li listed two verbs of killing, 'to kill one' and 'to kill several.' At a first glance these entries appear to be a lexically distinct but semantically related pair that marks the number distinction in the object. A re-examination of these entries from the point of view of aspectual derivation indicates that these constitute two related stem sets that mark two distinct aspects rather than numbers, that is,

(46)

	'to kill'	A	B	C	Aspect Prefixes
a.	Durative	-γóh(n-)	-γó(n-)	-γātc[15]	Ø/γi-
b.	Semelfactive	-γáh(n-)	-γí(n-)		Ø/si-

The following two partial paradigms exemplify the distribution of the two sets of stems.

(47) Durative: . . .Ø$_1$

	A (Ø$_3$)		B (γi$_3$-)	
a.	īsγóh	'I'm killing them.'	yīsγó	'I've killed them.'
b.	nīγóh	'You're killing them.'	yíγó	'You've killed them.'
c.	gùγóh	'He's killing them.'	gùyíγó	'He's killed them.'
	cf (D) nācγātc	'I killed them now and then'		

(48) Semelfactive: . . . zì$_5$- . . . s$_1$

	A (Ø$_3$)		B (si$_3$-)	
a.	zīsγáh	'I'll kill him.'	zìsīsyí	'I've killed him.'
b.	nīzīsγáh	'You'll kill him.'	zìsísyí	'You've killed him.'
c.	záàγáh	'We'll kill him.'	zīsáàyí	'We've killed him.'

The verb 'to kill' is apparently a duration theme, of which the durative aspect is for the sustained action (i.e., killing several) which contrasts with the semelfactive aspect which is for the unsustained action (i.e., killing one). Also it is interesting to note that *zì$_5$-* occurs only in the semelfactive paradigm. The status of this and other so-called thematic prefixes such as shown in (42–45) need to be re-examined, depending on how the notion 'theme' is defined. Based on structural contrast (e.g., s-perfective vs. y-perfective) as well as semantic contrast (e.g., termination of an activity vs. sustained activity) as exemplified by such verb pairs as 'to kill sg.' vs. 'to kill pl.,' or 'to make sg.' vs. 'to make pl.,' Kari (1979) sets up the conversive theme category in contradistinction to the operative/successive theme category. Further research may prove a similar categorization to be more adequate for the analysis of the verbs presented above (46–48).

As in other theme categories, the stem set variation is not observed in all duration themes. The verbs such as 'to smoke,' 'to pick berries,' and 'to gnaw,' to name only a few, have only one set of stems which occur in all available aspectual paradigms. For example, 'to smoke' has one stem set, *-t'ùd*(A), *-t'úd*(B), and *-t'ùj*(D), which is attested in at least two momentaneous paradigms as well as in the durative paradigm.

5.55. Repetition Themes.

The iterative aspect in Sarcee has been treated as a paradigmatic category marked by one of three stem-final consonants, *tc, c,* and *j*. An alternative analysis would treat it as a separate thematic aspect which is paradigmatically either in the imperfective (marked by no prefix) or perfective (marked by γi_3-). In either analysis, it is necessary to account for a class of verbs that inherently refer to a repetitive (thematic) paradigm which inflects only for A and B. The repetitive aspect, therefore, is identical semantically as well as morphologically to the iterative (paradigmatic) aspect. The terminological difference is intended to indicate the two different approaches to the same phenomenon.

The three different stem-endings of the repetitive theme category are illustrated by the following examples:

(49)	A	B	Gloss
a.	-t'ùj	-t'új	'to suck'
	-níj	-nìj	'to tell a story'
b.	-làtc	-làtc	'to travel'
	-nātc	-nātc	'to play'
c.	tɬ'ìc	-tɬ'ìc	'to mark, paint'
	tɬ'ìyìc	-tɬ'ìyìc	'to sparkle'

The A and B forms are identical except for the tonal difference in some themes.

Unlike other theme categories discussed in the preceding subsections, there is no convincing evidence that the repetition theme has any aspectual derivation with or without stem set variation. The only such evidence is found in the verb of 'eating.' There are two verbs of 'eating' in Sarcee, neither of which is an apparent cognate with what appears to be an old PA word, cf. *-ya'n* (Ahtna), *-yan* (Chilcotin). One is a duration theme (-nó, -noʔ, -nòɬ, -nōtc)[16] which does not have any alternating stem set, and another is apparently a repetition theme. This theme has the following stem sets:

(50)	'to eat'	A	B	Aspect Prefixes
a.	Repetitive	-tcīj[17]	-tsàd	Ø/γi-
b.	Momentaneous	-tsád	-tsàd	ni-/ni-

The repetitive stem set occurs in the unmodified theme, while the momentaneous set occurs in a modified theme as shown below:

(51) Repetitive

	A		B	
a.	īctcīj	'I'll eat (something).'	yīstsàd	'I've eaten.'
b.	ítcīj	'You'll eat.'	yítsàd	'You've eaten.'
c.	ītcīj	'He'll eat.'	γátsàd	'He's eaten.'
d.	īcáàtcīj	'We'll eat.'	γáàtsàd	'We've eaten.'

(52) Momentaneous

	A		B	
a.	k'āānīstsád	'I'll finish eating.'	k'āānīstsàd	'I've finished eating.'
b.	k'āānítsád	'You'll finish eating.'	k'āānítsàd	'You've finished eating.'
c.	k'āātsád	'He'll finish eating.'	k'āānítsàd	'He's finished eating.'

The verb theme represented in the above two paradigms is unique in that it is the only repetition theme in which stem set alternation is observed and that the expected sibilant final is present only in the A form of the repetitive paradigm.

5.56. Neuter Verbs.

The class of verbs that are often referred to in Athapaskan literature as neuter themes, descriptive themes, or stative themes correspond in general to what are called adjectives in other languages. Although this category of verbs manifest general characteristics of verb morphology and syntactic function of other (active) verbs, and there are other morphological characteristics that are commonly shared by neuter verbs, the formal and semantic criteria applicable to the establishment of a major theme category or subcategories to explain the derivational patterns of neuter verbs are not as straightforward as those applicable to the establishment of other major theme categories discussed in the preceding subsections. Those criteria include the alternation of conjugation markers and stem sets, both of which jointly specify the derivationally related thematic aspects of a given theme. Are there similar morphological characteristics that may be applied to establish a major theme category for neuter verbs? What, if any, motivates further subcategorization of neuter verbs? Consider the four sets of neuter verbs below.

(53) a. díɣàl 'It's round.'
b. dínísɣàl 'I'm round.' dínāāɣàl 'We're round.'
cf. nàɣál 'It'll roll.' nàsɣàl 'I'll roll it.'

(54) a. dìltsúw 'It's yellow.'
b. dīnīstsúw 'I'm yellow.' dīníltsūw 'You're yellow.'
cf. tógùsīstsúw 'I've painted it yellow.'

(55) a. nītcōw 'It's big.'
b. nìstcōw 'I'm big.'
c. yítcòw 'It's got big.' yíctcòn[18] 'I became big.'
cf. dīyīsɣùs 'It's got rough.' dísɣùs 'It's rough.'

(56) a. nàtsíd 'It's strong.'
b. nànítsíd 'You're strong.' nànīstsíd 'I'm strong.'
c. nàyīstsíd 'I became strong.'

If it is assumed that the (a) forms represent unmodified neuter themes, it may also be assumed that the neuter theme is marked by *dí-* in (53–54), *nī/nì-* in (55), and *nà-* in (56), which are most likely thematic rather than paradigmatic. I hasten to point out, however, that the behaviour of *dí-* and *nà-* is different from that of the other in that only the former two are followed by another prefix (i.e. *ni-*) in the (b) forms. In other words, the behaviour of the first prefix in (55) is different from that of the two prefixes in (53–54), which are considered thematic. This distributional difference and others mentioned below indicate that the *ni-*prefix in (55), which is apparently identical to the *ni-*prefix in the (b) forms, is not thematic in the sense *dí-* and *nà-* are, but a thematized perfective like the *si-*perfective (see below and 7.10).

While most of the neuter verbs are noted for a thematic prefix, including *dí-* and *nà-* discussed above, they are also noted for the absence of alternating conjugation markers, that is, there is no evidence that the neuter themes shown above inflect for paradigmatic aspect. This apparent lack of inflection in the neuter paradigm, which may serve as a synchronic criterion for defining the theme category in question, provides a clue for the morphemic identity of *ni-* which occurs in (55) and in other (b) forms. The prefix in question is most likely the reflex of what Krauss and Leer (1981:42) postulated as PA "perfective" *ŋ̊ə-.[19] This perfective prefix, which is present in the underlying representations of all of the neuter forms, including the (b) forms in (53–56), must have been deleted on the phonetic surface by a

rule similar to the one which deletes another perfective prefix (i.e., si_3-) as discussed in chapter 9. This identification of the *ni-* prefix leads one to a conclusion that what characterizes the neuter theme exemplified in (53–56) is not the thematic prefix but the perfective prefix, which corresponds to PA *ŋ̊ə-.

Further support for this analysis is provided by the distribution of the perfective prefix vis-à-vis the *yi-* that occurs in what is known as the transitional theme as exemplified by (55c) and (56c). As the forms in (55–56) suggest, *ni-* and *yi-* (both with varying tones), each marking an aspect, are mutually exclusive in that one occurs in the neuter form and the other in the transitional form. Considering the lack of an imperfective form for the neuter and the absence of further aspectual contrast in the transitional, the *ni-*prefixed neuter form and the *yi-*prefixed transitional form may be treated as two paradigmatic forms of a single thematic aspect paradigm.

Contrasting to the neuter verbs marked by the *ni-*perfective, there is another subclass of neuter verbs that are marked by the *si-*perfective which is not paradigmatic but rather thematic (i.e., marking a particular category):

(57) a. sīsts'íy 'It's bitter.'
b. sìsúw 'It's sour.'
c. sík'òz 'It's cold.'

(58) a. nīstsín (ni-si-tsín) 'He's fat.'
b. nīsīstsín 'I'm fat.'
c. nīyīstsín 'I've got fat.'

(59) a. sīgòn 'It's dry.'
cf. dīsgòn (di-si-gòn) 'It (wood) is dry.'
b. nágòn 'It's drying.' násìgòn 'It's dried.' yīgół 'It is drying.'
c. násgòn 'I'll dry it.' násīsgòn 'I've dried it.' nínácgōtc 'I dry it time and again.' (náná- ⟶ níná-; see 11.32)

As regards morphological and phonological characteristics, what was said of the *ni-* prefixed neuter verbs may also be said of the *si-* prefixed neuter verbs. There is no evidence that the *si-*perfective neuter inflects for paradigmatic aspect. The *si-*perfective neuter holds the same relationship as the *ni-*perfective neuter to the transitional, as exemplified by (58). The *si-*perfective neuter in (57) has the same morphological structure as the *ni-*per-

fective neuter in (55) except for the classifier. The *si*-perfective neuter in (58) is comparable morphologically and phonologically to the *ni*-perfective neuter in (56); in each the first prefix is thematic, and the perfective prefix in the (a) form is either deleted, as in (56), or reduced, as in (58). The neuter verbs and active verbs in (53) are derivationally related in the same way as the parallel forms in (59).

To sum up, the two perfective forms along with the transitional form are the morphological characteristics of the neuter verbs, according to which two neuter theme categories (e.g., stative themes marked by the thematized *si*-perfective vs. descriptive themes marked by the thematized *ni*-perfective) may be established. Needless to say, further subclassification will be necessary, in order to determine the distribution of the thematic prefixes, the derivability of the transitional, and the relationship between the neuter and active themes.

5.60. SUMMARY.

I have dealt in this chapter primarily with three areas of Sarcee verb morphology: (i) the prefix categories, (ii) the derivational (thematic) and inflectional (paradigmatic) aspect categories, and (iii) the subcategorization of verbs into theme categories in order to account for the derivational and inflectional processes.

A brief comment on each prefix category is intended as an introduction to subsequent chapters in which details of the major prefix categories are discussed. Four active theme categories and two neuter theme categories are proposed in order to specify morphological characteristics with particular attention to the thematic aspect and paradigmatic aspect, both of which involve the analysis of stem variation and conjugation markers. The subcategorization of the verbs into these theme categories is only a tentative proposal, and no attempt is made to categorize all the verbs into these subcategories. It will be necessary to postulate more theme categories than those proposed in this chapter. Particularly difficult to deal with are those active verbs which are clearly (historically) derived from neuter verbs.

Two contrasting views on defining the verb theme and related analytical problems are discussed. The traditional view, which is implicit in Hoijer, Li, and Golla, among others, is analytical in that different aspectual paradigms, sharing the same root are considered to represent different themes. On the other hand, Kari's view expressed in his analysis of Ahtna is synthetic in that different aspectual paradigms sharing the same root derive

from the same verb theme. Both views have problems in dealing with the classifier and other "thematic" elements. I have attempted to present Sarcee data from an historical perspective which happens to be synthetic without prejudice, however, to the analytical view. In other words, it cannot be determined whether the alternating stem sets should be treated as constituents of different themes in a synchronic grammar of Sarcee. The answer lies in part in the extent in which the alternation is productive and in part in the way in which the verb theme is defined. The basic question of the latter remains unresolved as a pan-Athapaskan problem.

6

Classifiers and Theme Types

6.00. INTRODUCTION.

As shown in the preceding chapter, the theme derivation may not involve any prefix at all except the classifier or it may involve one or more thematic elements. Where the classifier is zero, a verb stem alone may represent a theme, while a related theme may be derived by alternating the classifier with or without adding a thematic prefix. Although no systematic correlation exists between a thematic prefix and a theme type, the classifiers alternate in a systematic way (albeit with apprently unpredictable behaviours) according to theme types in the process of theme derivation. The main purpose of this chapter is to examine the functional characteristics of the classifiers that are not always transparent on the surface because of extensive and complicated morphophonemic alternations.

The classifier, which is "a blatant misnomer" (Krauss 1969, also see 1968)[1], does not have any noun classificatory function. Nor does it have a strictly coherent function in classifying verbs, although it may be shown that a certain classifier is present more often than not in a certain type of theme.

The four Athapaskan classifiers, zero (unmarked), *d*, *ɬ*, and *l*, have undergone a substantial sound change in Sarcee because of d-Effect and other rules. The Sarcee reflexes of these four classifiers are cited as $Ø_1$, d_1-, s_1-, and l_1- respectively. Alternatively, these are cited as Ø, D, Ł and L respectively where neither their prefix position nor their surface phonetic representations are immediate concerns. Details aside, D merges with the stem-initial consonant, i.e., d-Effect (e.g., D + z ⟶ dz), or deletes, Ł is realized by *s* or deleted, and L completely assimilates to the immediately preceding vowel or deletes (see chapter 11).

6.10. FUNCTION OF CLASSIFIERS.

The most consistent function of the classifier is to make such distinctions as intransitive vs. transitive (causative) and active vs. passive ("mediopassive," reflexive). It seems more natural, however, to view the classifier as a formative that changes a given (primary, underived)[2] theme to another related (secondary, derived) theme (e.g., from intransitive to transitive), than to view it as a morpheme which has an intrinsic semantic property.

Consider the following examples with classifier $Ø_1$ in (1), l_1- in (2) and s_1-in (3):

(1)	a.	nītɬ'úl	⟵ ni_7-$Ø_2$-$Ø_1$-tɬ'úl	'It is long.'
	b.	nīstàh	⟵ ni_3-s_2-$Ø_1$-tàh	'I lie down.'
	c.	gùyíɣó	⟵ gu_8-ɣi_3-$Ø_2$-$Ø_1$-ɣón	'He killed them.'
(2)	a.	dìgúc	⟵ di_7-$Ø_2$-l_1-gúc	'It is very white.'
	b.	nàyìlyíz	⟵ $nà_{10}$-ɣi_3-$Ø_2$-l_1-ɣíz	'He jumped off.'
	c.	īnīīlús	⟵ i_8-ni_3-$Ø_2$-l_1-lús	'She sews something.'
(3)	a.	tòyísk'ís	⟵ $tò_{10}$-ɣi_3-$Ø_2$-s_1-k'ís	'It is hot.'
	b.	nádìctítc	⟵ $ná_{10}$-di_4-$Ø_2$-s_1-títc	'He barks.'
	c.	mídīstòy	⟵ mi_8-di_4-s_2-s_1-tòy	'I am counting them.'

Three types of themes are represented in the above examples. Examples (1a), (2a), and (3a) represent one theme type (descriptive), examples (1b), (2b), and (3b) represent another (active intransitive), and examples (1c), (2c), and (3c) a third (active transitive). Notice, however, that three different examples of the same theme show three different classifiers. Examples involving D are not easy to find, mainly because of the d-effect that has obliterated such differences as *d* + ɣ (⟶ *g*) vs. Ø + *g*, *d* + ʔ (⟶ *t'*) vs. Ø + *t'*, and so on. Assuming that all the themes represented above are primary themes, it seems that there is no inherent grammatical or

semantic relationship between the classifier and the theme. However, in the derivation of secondary themes, that is, themes that derive from the primary themes, the function of the classifiers marking transitivity, reflexivity, and others, is apparent.

6.20. CLASSIFIERS IN THEME DERIVATIONS.

The following paired examples illustrate the semantic relationship between the two related themes, which is marked by the classifiers:

(4)	a.	nìsílúz	⟵ ni-si-ni-Ø-lúz	'You sewed it.'
	b.	nìsdlúz	⟵ ni-si-d-lúz	'It is sewed.'
(5)	a.	yīs?í	⟵ γi-s-Ø-?ín	'I saw it.'
	b.	yìst'í	⟵ γi-s-d-?ín	'I was seen.'
(6)	a.	ásīsdíh	⟵ á-si-s-díh	'He will break (train) me.'
	b.	áyìidìn	⟵ á-γi-l-dìn	'He is broken in.'
(7)	a.	dīskìz	⟵ di-s-s-kìz	'I will mark it zigzag.'
	b.	dīikìs	⟵ di-l-kìs	'It is marked zigzag.'

In examples (4) and (5), Ø appears in an active theme and D in a corresponding passive theme. If we assume that the active theme with Ø (a) is a primary theme, the corresponding passive theme (b) is derived by replacing Ø with D. The same derivational relationship holds between the active and passive themes in (6–7), wherein Ł and L parallel Ø and D of (4–5) respectively.

A second type of theme derivation involves Ø and Ł, as exemplified by the following intransitive-transitive pairs:

(8)	a.	nágòn	⟵ ná-Ø-gòn	'It is drying.'
	b.	náyìsgòn	⟵ ná-γi-s-gòn	'He will dry it.'
(9)	a.	gwādíkò?	⟵ gu-a-di-Ø-kò?	'It is spread out'
	b.	gwāyídískò?	⟵ gu-a-γi-di-s-kò?	'He will spread it (cloth) out.'

Again, if we assume that the descriptive (intransitive) theme with Ø is a primary theme, a secondary theme which is a causative (transitive) is derived by replacing Ø with Ł.

The above three pairs of classifier alternations between related themes are most common. Besides these, there are other alternations such as Ø ~ D and Ø ~ L, but no consistent semantic relationship seems to exist among the themes marked by these pairs of classifiers.

Examples (4–9) show verb stems with two different classifiers representing two related themes. While only one verb stem, which represents four different (although related) themes (using four different classifiers), is recorded (Li 1930), there are a few stems that may co-occur with three different classifiers. The following is an example:

(10)	a.	mìk'ánítc'ùl	⟵ mi-k'á-ni-Ø-tc'ùl	'It (a rope) has broken.'
	b.	mìk'ānīctc'ùl	⟵ mi-k'á-ni-s-s-tc'ùl	'I tore it off.'
	c.	màdíítc'ūl	⟵ mi-à-di-l-tc'úl	'There is a ripping noise.'

Although some semantic and grammatical characteristics of the classifiers are observed in the examples of (4–9), it is still not clear how the classifier should be treated in a synchronic description. Examples like the following add more difficulty to the existing problem:

(11)	a.	sītíh	⟵ si-Ø-tíh	'It (a living being) is lying.'
	b.	sīstíh	⟵ si-s-tíh	'It (a dead body) is lying.'
(12)	a.	dìdìc?íc	⟵ di-di-s-Ø-?íc	'I step along (not carefully).'
	b.	dìdìct'íc	⟵ di-di-s-d-?íc	'I step along (carefully).'

6.30. THEME TYPES.

Bearing this in mind, I shall now examine some characteristics of themes marked by Ł and D in this section, which is of some interest, at least from a statistical point of view. Ł most commonly appears in transitive (both causative and noncausative) themes, and its use in intransitive and descriptive themes is very rare.

It was shown in (6–7) that the L is used in a passive theme where Ł is used in a corresponding active theme. Aside from this derived theme, L is found often in another derived theme, namely "reciprocal" and in two primary themes. First, consider the reciprocal themes with L in the following examples:

(13) a. níhígìsdàɬ ⟵ nihi-gi-s-dàɬ 'They will attack us.'
b. áɬɬígíídàɬ ⟵ atɬi-gi-l-dàɬ 'They will fight each other.'

(14) a. náyīsxàl ⟵ ná-γi-s-γàl 'He will throw him down.'
b. náàtɬìgììγàɬ ⟵ ná-atɬi-gi-l-γàl 'They will throw each other.'

The nonreciprocal transitive themes of (13a) and (14a) and the reciprocal transitive themes of (13b) and (14b) are marked formally by Ł and L respectively (together with the choice of a proper object prefix). Notice that the alternation of the classifiers, Ł and L, for the nonreciprocal and reciprocal is exactly the same for the active and passive themes.

A second type of theme where L is consistently found is descriptive themes of colours:

(15) a. dìnīsgáy ⟵ di-ni-s-l-gáy 'I am white.
b. dìlk'ól ⟵ di-l-k'ól 'It (hair) is white.'
c. dìlgúc ⟵ di-l-gúc 'It (cloth, paper) is white.'
d. díík'áz ⟵ di-l-k-áz 'It's red.'
e. díítsūw ⟵ di-l-tsúw 'It's yellow (green).'
f. dìltsáy ⟵ di-l-tsáy 'It's orange-yellow.'

The active (transitive) themes corresponding to the above descriptive themes have Ł instead of L (e.g., *tógùsk'áz* ⟵ tó-gu-s-k'áz 'he painted it red'). This theme relationship marked by the L/Ł here is parallel to that marked by the Ø/Ł alternation in (8–9). Interestingly enough (and yet puzzling), not all colour themes are marked by L. The colour terms which belong to the other end of the spectrum are marked by Ł. The following list is perhaps complete:

(16) a. dícgòc ⟵ di-s-gòc 'It's black.'
b. dínìcdjōc ⟵ di-ni-s-djōc 'It is blue/green.'
c. dínìstsìtɬ' ⟵ di-ni-s-tsìtɬ' 'It (animal) is greyish blue.'
d. dínìsk'ūs ⟵ di-ni-s-k'ūs 'It is light blue.'

An interesting question to be raised at this point is how the active (transitive) themes corresponding to the descriptive themes above are derived. Although only one form is recorded, it is worthy to note that no classifier alternation is involved. The active theme corresponding to (16a) 'to be black' is *tócgìɬtc* (⟵ *tó-s-gìɬtc* 'I will paint it black') wherein the classifier is Ł (the same as in the descriptive theme).[3]

A third type of themes in which L appears consistently is what I call "the sound themes." Li's (1930) stem list contains over thirty different themes referring to sounds. Following are a few typical ones:

(17) a. màdīīgáts' ⟵ mà-di-l-gáts' 'It sounds hard and dull.'
b. màdííkòt ⟵ mà-di-l-kòt 'There is a slapping noise.'
c. màdíí?ìh ⟵ mà-di-l-?ìh 'He groans.'
d. màdííkóɬ ⟵ mà-di-l-kóɬ 'It (paper, etc.) makes rough noise.'
e. màdīīts'ús ⟵ mà-di-l-ts'ús 'He wheezes (in sleeping).'

These "sound" themes share not only the same classifier, but also the same prefixes. Prefix *di-* is obviously the same as the *di-* in "colour" themes. The segment *mà-* probably represents an incorporated PP (*mi-à*)[4], where the object prefix *mi-* refers to a "designated" object, just as subject prefix *ts'i-* refers to such a subject (see chapter 8). Bearing in mind the use of L, which is used most commonly in reciprocal themes, this interpretation makes good sense, given that the sound is produced by a reciprocal action of two parties (the subject and object (*mi-*) of the sentence).

Of all the sound themes, there are only two[5] in which Ł or Ø, instead of L, appears; that is,

(18) a. màdíjìj ⟵ ma(mi-a)-di-Ø-jìj 'It rattles.'
b. ìdìdìcgác ⟵ i-di-di-s-gác 'He makes a shrilling noise.'

In a sense, these examples support the view that those in (17) are reciprocal themes marked by L, which are distinguished by nonreciprocal themes marked by another classifier (e.g., Ø, Ł). In this interpretation of the data (17–18), (18a) still stands out as an exception, since *mà-* suggests one theme and the zero-classifier another.

Golla (1970:174) has a "complete" list of eighteen descriptive themes referring to "noise" in Hupa. What is common in all of them is the use of "thematic deictic subject $\dot{k}^{y}i_{8}$-." It is reasonable to assume that the Sarcee cognate of this subject prefix is $ts'i_{6}$-, but no descriptive sound theme of Sarcee has this prefix. It is not mentioned which classifier occurs in the Hupa descriptive themes. In any case, it is already interesting from a comparative point of view to note the use of the deictic prefix in Hupa on the one hand, and the use of L and *mà-* in Sarcee on the other.

6.40. D-CLASSIFIER IN REFLEXIVE THEMES.

As shown in (4–5), D appears in passive themes. Another theme in which

D appears consistently is the reflexive theme. At this point, a distinction should be made between a true reflexive theme and a quasi-reflexive theme. Consider the following set of verbs, one of which translates as a reflexive in English:

(19) a. ìnìsʔás ⟵ i-ni-s-ʔás 'I will kick him.'
b. ìdìnìsʔás ⟵ idi-ni-s-ʔás 'I'll kick myself.'
c. mísʔás ⟵ mi-s-ʔás 'I am kicking it.'

The above active theme is represented by stem *-ʔás* (imperfective) and Ø classifier. Compare the object prefixes *i-* 'him,' *idi-* 'oneself,' and *mi-* 'it.'[6] What makes the second form (19b) different from the others is the reflexive prefix, that is, the reflexive object is what renders the "reflexive" translation of (19b). It should be emphasized here, however, that the active theme may take any form of object prefix. In other words, the theme may be used either where the subject and object are not coreferential (as in 19a) and (19c) or where they *are* coreferential as in (19b). In the latter case, the theme appears to be a reflexive theme, but the form with prefix *idi-* belongs to the paradigm of an active theme that inflects normally for any person in the object inflection.

The inflection of a true reflexive theme, however, is limited to the reflexive, that is, the only object prefix that may occur in a reflexive theme is a thematic or an incorporated noun. Compare the two themes in (20) and (21).

(20) a. nísìł ⟵ ni-s-zìł 'There is a warm breeze.'
b. dísíł ⟵ di-s-zíł 'There will be a warm breeze.'

(21) a. náàsdzíł ⟵ ná-i-s-d-zíł 'I am warming myself.'
b. náàdzíł ⟵ ná-i-d-zíł 'He is warming himself.'

As shown in the previous chapter, a reflexive theme is also derivable by incorporating a stem in place of the thematic object prefix. I will list here one of the three reflexive themes presented in the preceding chapter:

(22) a. kútsìst'òh ⟵ kú-tsì-s-d-ʔòh 'I'll put my head in.'
b. kútsìnìt'òh ⟵ kú-tsì-ni-d-ʔòh 'Put your head in!'

Both (20) and (21) have the same stem: *-zíł* (imp) and *-zìł* (perf), but the classifiers are different: Ł in the nonreflexive and D in the reflexive. Assuming that the theme in (20) is a primary theme, a secondary (reflexive)

theme in (21) is derivable from (20) by adding the thematic object i_8- along with $ná_{11}$- (adverbial)[7] and replacing Ł with D. The reflexive theme, *'x put x's head in'* derives from an active theme *'x handle y'* (where *y* is a round heavy object), incorporating *-tsì* and replacing Ø with D. The stem incorporated in the above theme is *-tsì* 'head,' whose function is parallel to *i-* (thematic object) of (21). Notice that the incorporated noun, which is without a possessive prefix in the reflexive theme, is the direct object of the sentence.

Not every reflexive theme, however, has a thematic element in the prefix position. The reflexive theme in (24) is obviously related to (23).

(23) a. ìnìsʔás ⟵ i-ni-s-Ø-ʔás 'I will kick him.'
b. ìdìnìsʔás ⟵ idi-ni-s-Ø-ʔás 'I will kick myself.'

(24) a. mīyìst'ás ⟵ mi-yì-s-d-ʔás 'I'll put my feet into it.'
b. xànīyít'àzlà ⟵ xà-ni-γi-d-ʔàz-là 'He pulled out his leg.'

The verb stem in the above themes means roughly 'to do with one's foot.' The transitive theme with Ø inflects for objects (*i-* and *idi-* being two of many object prefixes which may occur in that position), whereas the reflexive theme in (24) does not inflect for objects, that is, no object prefix occurs in position 7. The two sets of examples above nicely illustrate the difference between a quasi-reflexive and a true reflexive. In the quasi-reflexive (23b), the reflexive object prefix *idi-* happens to be coreferential with the subject prefix *s* (1sg), but the object and subject are not always coreferential as shown in (23a). On the other hand, the subject and the possessor of the object, whether the object is implicit as in (24) or explicit as in (22), are always coreferential. Therefore, the reflexive theme (24) cannot be used in such expressions as 'I will pull out your leg,' 'Pull my leg out,' and so forth.

6.50. PASSIVE VS. MEDIOPASSIVE.

Li (1930:5) observed a distinction between the passive and the mediopassive. Since these two types of passives offer some interesting features, I shall examine the structures in some detail. For structural comparisons, example (5b) and a comparable active form are cited in (25) with a more detailed morphemic analysis.

(25) a. sàʔílà ⟵ si_7-$γi_3$-$Ø_2$-$Ø_1$-ʔín-là 'He saw me (really).'
b. yìst'í ⟵ $γi_3$-s_2-d_1-ʔín 'I was seen.'

In the passive construction, the subject (s_2-) is interpreted as patient, and there is no overt agent. Structurally, there is little difference between the active and the passive except the choice of a different classifier in each. Compare now the active and medio-passive constructions below.

(26) a. nàyílī ⟵ $nà_{11}$-γi_7-$Ø_2$-$Ø_1$-lī 'He is expecting him.'
b. nàmídlī ⟵ $nà_{11}$-mi_7-d_1-lī 'He is expected.' (there is an expectation for him)

(27) a. nàmístłī ⟵ $nà_{11}$-mi_7-s_2-$Ø_1$-lī 'I am expecting him.'
b. nàsídlī ⟵ $nà_{11}$-si_7-d_1-lī 'I am expected.' (There is an expectation for me)

A striking structural difference between the active and the mediopassive is that there is no subject (position 2) in the latter. The fact that there is no subject in the mediopassive is *proven* by the fact that the third person object prefix is *mi-* in the mediopassive, that is, the third person object is γi_7- if the subject is also in the third person; otherwise, it is mi_7-. An interesting contrast emerges between the structure of the passive and that of the mediopassive. While the patient is marked by the subject prefix in the passive, it is marked by the object prefix in the mediopassive. In neither is there an overt agent and the classifier is D.

The active-passive relationship in (25) and the active-mediopassive relationship in (26–27) are beyond doubt, but there is no evidence that a given active theme is related to both a passive and mediopassive. It appears that there is no single active theme from which both of these two types of secondary themes are derivable. It is also not clear which of the two passives will be derivable, if derivable at all, given an active theme.

6.60. SUMMARY.

The processes of theme derivation by alternating classifiers must have been quite productive in earlier stages of the language. Although there are many instances in which the function of the classifiers cannot be determined, the behaviour of the classifiers is not totally unpredictable. Ł is found in many transitive themes and in causative transitive themes which derive from intransitive themes. L and D, on the other hand, are found in passive themes, and only D appears in reflexive themes.

7

Thematic Prefixes, Adverbials, and Postpositional Constructions

7.00. INTRODUCTION.

It is assumed here that the elements occurring in position 5 are thematic mainly for two reasons: (i) the element has no independent meaning, in which case it is simply considered as a co-constituent of the stem, and (ii) the element occurs in a certain class of theme, in which case it is considered "a semantic class marker" (Golla 1970). It is suggested (see below) that this latter type of thematic prefix is related (at least historically) to aspect prefixes. It is alluded to elsewhere in this book that some adverbials of position 11 and incorporated PP's are thematic. Following the discussion on the classifiers vis-à-vis theme types in the preceding chapter, the purpose of this chapter is to study various verb prefixes from the point of view of theme derivation.

7.10. THEMATIC PREFIXES IN POSITION 5.

The most common semantic class markers are *di-* and *ni-*. It should be pointed out that the latter is identified as a thematized perfective prefix that corresponds to PA *ŋə- (see 5.56). While the synchronic status of this prefix is not fully understood, it is dealt with in this chapter along with other

thematic prefixes. As pointed out in chapter 6, almost all sound themes and colour themes are marked by *di*$_5$- along with L. The *di-* thematic is not restricted to these semantic classes. Consider the following:

(1) a. *dí*γàl '(It's) round.' (impersonal theme)
b. *dí*nísγàl 'I'm round.' (personal theme)
c. *dí*γàl 'He's round.' (personal theme)

(2) a. *dī*ìkìs 'It's marked zigzag.'
b. *dī*skìz 'I'll mark it zigzag.'

(3) a. *dī*yítɬ'úl '(It's) tall.'
b. *dí*yìtc'àl '(It's) sharp.'

(4) a. *dí*nīsmì? 'I'm greedy.'
b. *dí*mì? 'He's greedy.'
cf. *dí*yīsmì? 'I had a good appetite.'

Unlike sound themes and colour themes, these neuter verbs marked by *di-* cannot be grouped into a well-defined semantic subcategory. The prefix *yi-* in (3) suggests that the two verbs are transitional forms.

The thematized *ni*-perfective occurs in a much smaller class of neuter verbs, most of which refer to size or weight.

(5) a. *ní*kìɬ '(It's) heavy.'
b. *ní*skìɬ 'I'm heavy.'

(6) a. *nī*tcōw '(It's) big.'
b. *nī*ctcōw 'I'm big.'

(7) a. *nī*tc'ák'āā '(It's) narrow, slim.'
b. *nī*ctc'ák'āā 'I'm slim.'

(8) a. *ní*tsìtɬ'à '(It's) little.'
b. *nī*tɬ'úl '(It's) long, tall,' cf. (3a)

The thematized *ni*-perfective is mutually exclusive with the thematized *si*-perfective prefix, but either may co-occur with *di-*.

Nevertheless, the occurrence of *di-* in the *si*-perfective neuter is rare; (see

[12]). This is likely not accidental, considering the semantic feature shared by the *si*-perfective neuter verbs listed below.

(9) a. *sī*sts'íy 'It's bitter.' ('It hurts.')
b. gūsts'íy 'It's bitter cold.'
c. nágùsts'íy 'It got bitter cold again.'

(10) a. *sí*k'òz 'It (obj) is cold.'
b. gùsk'òz (gu-si-k'òz) 'It (weather) is cold.'

(11) a. *sì*súw 'It's sour.'
b. *sì*súwāā 'It's a little sour.'

The two mutually exclusive perfective prefixes do not function as a conjugation marker (i.e., thematized); but they occur in prefix position 3 rather than position 5, as indicated by the distribution of *di-*, which occurs in position 5. This prefix is apparently related to the d-gender of Ahtna (see Kari 1979), as suggested by the following neuter verbs:

(12) a. sīgòn 'It's dry.'
b. *dī*sgòn (di-si-gòn) 'It (wood) is dry.'
c. *dī*kò? 'It (board) is flat.'

The absence or presence of *di-* in (a) or (b) respectively is explainable by the gender or semantic category (cf. semantic class marker) of the underlying subject of the respective neuter verb. However, for the moment, it cannot be explained why it occurs both in the neuter and active themes as in (13) and why it is replaced by another prefix in the derived active themes as in (14–15).

(13) a. *dī*kò? '(It's) broad, flat.'
b. gwā*dí*kò? 'It's spread out' (gwā← gu-γà$_{10}$).
c. gwā*dískò*? 'I'll spread it (cloth) out.'
d. gwā*dí*yískò? 'I've spread it out.'
(gu-γà-*di*-γ*i*-s-kò?)

(14) a. *dì*ìtsúw '(It's) yellow.'
b. *dī*nīstsúw 'I'm yellow.'
c. *tó*gùsīstsúw 'I've painted it (house) yellow.'

(15) a. *dìi*k'áz 'It's) red.'
b. *dì*nìsk'áz 'I'm red.'
c. *tó*sīk'áz 'I've painted it red.'

Another unresolved problem is the identity of *ni-* that is preceded by *di-* in a small subclass of neuter verbs. As discussed in 5.56 and 11.40, the *ni-* perfective (PA *ŋə-) is regularly deleted following *di-* if the subject is impersonal or a third person (see [14a] and [15a]). Is the *ni-* in (16) the same perfective prefix? If so, why is it not deleted under what appears to be an identical condition? They are all nonbasic colour terms, both in Sarcee and Navajo forms. The glosses indicate that the prefix in question modifies the lexemes in a systematic way in the respective languages, suggesting that the *ni-*prefix that occurs in the secondary colour terms is not the *ni-*perfective, but another homophonous prefix.

(16) a. dì*ní*gāy 'It's white-striped.'
b. dì*ní*tsūw 'It's yellow-striped.'
c. dī*ní*k'áz 'It's light red (pink),' 'red-striped.'
d. dí*ní*sk'ūs 'It's light-blue.' (but see dí*ní*cdjōc 'blue')
e. dí*ní*stsītł' 'It's greyish-blue (animal).'

This *ni-* corresponds to *ǹ-* of Navajo (Krauss 1969):

diǹlčí' 'It's pink.'
diǹžin 'It's blackish.'
diǹlgai 'It's whitish.'
diǹlbá 'It's greyish.'

The thematic prefixes whose distribution is restricted to a single theme include $zì_5$- and $yì_5$- among others. Consider the following data:

(17) a. zìsīsyíh ⟵ $zì_5$-si_3-s_2-s_1-yíɳ
'I've killed him.'
b. yīsγó ⟵ $γi_3$-s_2-γón
'I've killed them.'

(18) a. nà*zì*sts'ìh ⟵ $nà_{10}$-$zì_5$-s_2-ts'ìɳ
'I'll speak.'
b. dìsts'íh ⟵ $dì_4$-s_2-ts'íɳ
'I'll hear it.'

(19) a. ì*yì*yìsó ⟵ i_7-$yì_5$-$γi_3$-s_2-zón
'I've beaten my wife.'
b. *íyì*nìsnīh ⟵ i_7-$yì_5$-ni_3-s_2-nīh
'I'm jealous (of someone).'

In (17) two alternate stems are involved: in (a) -γ*íh* 'to kill one' and in (b) γ*ón* 'to kill several.' Notice that $zì_5$- occurs in (17a) but not in (17b). In (18), the stems may be historically related, but there is no way to determine any independent grammatical or semantic feature for *zì-*, which happens to be homophonous with the thematic prefix in (17a). The two forms in (19) are superficially alike, having i_7- and $yì_5$-, but each of these two prefixes does not have the same morphemic identity. In (a) 'to beat one's wife,' i_7- is a thematic object prefix in that no other object prefix may replace it; that is, the verb does not inflect for other object persons, and the subject and the possessor of the object are always coreferential. On the other hand, i_7- in (b) is 3sg unspecified object prefix which may be replaced by other object prefixes; that is, the verb inflects normally. As for $yì_5$- in both (a) and (b), it may be just another case of homophony, as is $zì_5$- in (17a) and (18a). These thematic prefixes are treated as co-constituents of their respective stems. This does not mean, however, that each thematic prefix of position 5 occurs in one and only one stem (or root) or theme. As shown above, some are more restricted in distribution than others.

7.20 THEMATIC ADVERBIALS.

In the preceding analysis, I have assigned only one position, that is, position 11, for the element or elements which I have tentatively called "adverbial." This apparently oversimplified treatment of what precedes the position 10 element is intended to present the relevant data without getting unnecessarily involved with the complexities of the prefixes which do not directly bear upon the problem at hand.

The elements occurring in position 11 can be conveniently classified for the purpose of our discussion into the following two types: (i) monosyllabic or disyllabic elements which are apparently adverbial, and (ii) other element or elements whose meaning cannot be defined independently of a given theme. In a sense the latter is a "waste basket" category, since it includes any element whose morphemic identity cannot be established (from a synchronic point of view, at least). Consider the position 11 elements in the following data:

(20) a. tōstsò ⟵ tò$_{11}$#s$_2$-tsò 'I'll die.'
b. tònítsò ⟵ tò$_{11}$#ni$_2$-tsò 'You'll die.'
c. tògītsò ⟵ tò$_{11}$#gi$_7$-tsò 'They'll die.'
d. tōnádìctcàtc ⟵ tò$_{11}$#ná$_{10}$-di$_4$-s$_2$-tsòtc 'I die (faint) repeatedly.'

(21) a. tɬ'àsìdìsgás ⟵ tɬ'à$_{11}$#si$_7$-di$_4$-s$_1$-gás 'He'll sweep me out (as if I were dirt).'
b. nàsìnīsgás ⟵ nà$_{11}$#si$_7$-ni$_3$-s$_1$-gás 'He'll brush me down.'
cf. xásgás 'I'll brush it off.'

The morphemic identity of *tó#*$_{11}$- in (20) cannot be established independently of the stem *-tsò* which does not occur without that particular prefix. In other words, the stem along with the disjunct prefix and zero classifier represents the theme 'to die.' On the other hand, the two disjunct prefixes in (21) hold a different relationship with the stem. Note that the two prefixes are mutually exclusive, which suggests that neither prefix constitutes an obligatory constituent of the theme. It turns out that *nà*$_{11}$# 'down' is a widely distributed adverbial like *xá*$_{11}$# 'off' (as in *xásgás* 'I'll brush it off'). *tɬ'à#*$_{11}$ 'completely' is also an adverbial prefix, an optional constituent unlike *tò*$_{11}$# in (20) which is an obligatory constituent of the verb.

Another interesting thematic adverbial is *tó*$_{11}$#, which occurs in the causative/transitive or mediopassive themes deriving from corresponding descriptive themes marked by *di*$_5$-. Notice in the following examples that the thematic prefix (*di*$_5$-) of the descriptive theme regularly corresponds to the thematic adverbial (*tó*$_{11}$#) of the causative/transitive or mediopassive theme:

(22) a. *dìi*tsúw 'It's yellow.'
b. *tó*gùsīstsúw 'I've painted it yellow.'

(23) a. *dìi*t'ój 'It's sticky.'
b. *tó*ct'ōj 'I'll coat it with pitch.'

(24) a. *dìi*k'áz 'It's red.'
b. *tó*sk'áz 'It is painted red.'

(25) a. *dìi*gáy 'It's white.'
b. *tó*sìsgày 'I'm covered with white.'

The thematic adverbial *tó#* also occurs in the transitive themes referring to colouring, which do not have corresponding descriptive themes. Following are two sets of examples:

(26) a. *tó*cgìɬtc^{l} 'It's painted black;' 'I'll paint it black.'
b. *tó*nīgìɬtc 'You paint it black.'
c. *tó*cīcgìɬtc 'I've painted it black.'

(27) a. *tó*gùstsíy 'I'll paint.'
b. *tó*gútsíy 'You paint.'
c. *tó*sítsíy 'Paint me.'

In short, the thematic adverbial is comparable to the thematic prefix of position 5 in that it is an obligatory co-constituent of the root and that the two thematic prefixes are mutually exclusive in related themes. The thematic adverbial occurs either in a given theme only, like the thematic prefix of position 5, or in a derivationally related theme. These characteristics of the thematic adverbial are well contrasted with those of the nonthematic adverbial, the characteristics of which will be the concern of the following section.

7.30. NONTHEMATIC ADVERBIALS.

The characteristics of the nonthematic adverbial may best be described by its freedom of distribution and transparency of meaning. Unlike a thematic adverbial, a nonthematic adverbial may occur in a variety of verbs which are derivationally unrelated. It does not constitute an essential part of the theme; rather it modifies a given lexical meaning of the theme. The following three sets of examples illustrate this point:

(28) *ná#* 'homeward'
a. *ná*dìsìskīh 'I paddled for home'
b. *ná*dīsīstɬ'ò 'I'm running back home.'
c. *ná*dìsīsgí(n) 'I'm on my way home with a pack.'
cf. dìsīsgí(n) 'I've started with it (on my back).'
d. *nà*dìsīsdúz 'I crawled back home.'
cf. nīsdúz 'I crawled.'

(29) *k'à#* 'finishing'
a. *k'à*gùnīcnáj 'I've finished talking.'
cf. gūyīcnáj 'I've talked'

b. *k'ànílíz* 'He finished urinating.'
cf. sīlíz 'He urinated'
c. *k'àádīnīcwùct* 'I'm done whistling.'
cf. ídìcīcwùct 'I've whistled'
d. *k'àgúníst'ìn* 'I finished working.'
cf. gùh ʔást'í 'I'll play with it.'

(30) *xà#* 'out'
a. *xàyīstɬ'ódī* 'I'll rush out later.'
cf. dìyìstɬ'ódī 'I'll race later.'
yīstɬ'íɬ 'I'm rushing.'
b. dīcóh 'I'll go.'
cf. *xà*cóh 'I'll go out.'
kúcáh 'I'll go in.' (*kú#* 'in')
c. *xàà*díyìcwùc 'I whistle while going out.'
cf. *kūū*díyīcwùc 'I whistle while going in.'
d. *xà*yìnīwúd 'He drives him out.'
cf. sínāwūɬ 'He's driving me.'

Enough examples are given above to show that an adverbial of position 11 occurs in verbs representing a variety of themes that are derivationally unrelated. In (28), adverbial *ná#* 'homeward' occurs in such verbs as 'to paddle,' 'to run,' 'to carry on the back,' and 'to crawl,' among others. The two forms in (28c), among others, indicate that an adverbial is an optional constituent; that is, the theme 'to carry on the back' is represented in two verb forms, one with, and the other without, an adverbial $ná_{11}$#. Consider now the three forms in (30b). It is apparent that both $xà_{11}$# and $kú_{11}$# replace *di-*. It is not clear, however, why *di-*, which is di_4- (inceptive) rather than di_5- (thematic), is deleted when adverbials like *xà#* or *kú#* occur.

As observed elsewhere (chapter 5), some of the adverbial prefixes are closely tied with aspectual derivation, which means that there are strict co-occurrence restrictions between some adverbial prefixes and conjugation markers. *k'à#* in (29), which occurs in a momentaneous paradigm marked by ni-/ni-, is a typical example. The distribution of this type of adverbial prefixes is more general than thematic adverbial prefixes, but less general than others which are not closely tied with a particular aspectual paradigm; for example, *nà#* 'down,' *tá#* 'up,' or *xà#* 'out.'

These monosyllabic adverbials are phonologically dependent in that they never occur alone, although their grammatical relationship with the verb stem in the theme is exactly the same as that of disyllabic adverbs which are

phonologically independent, that is, words. Consider the following pair of examples:

(31) a. *tá#* 'up, on'
tásīsʔó ⟵ $tá_{11}$#si_3-s_2-s_1-ʔón
'I've put it on.'
b. *dígá* 'around'
dígá dīnīsísʔó ⟵ dígá di-ni_4-si_3-s_2-s_1-ʔón
'I've turned it over.'

Both of these themes are built upon the same stem; that is, the perfective form of 'to handle a bulky (round) object.' While *tá#* is always bound, *dígá* is separable from the prefix complex (in that there may be a pause between *dígá* and the rest of the verb). However, a disyllabic adverbial element is like a monosyllabic adverbial in that its meaning is transparent and definable independent of the theme which it modifies; it may occur in a variety of themes based on different stems; and it co-occurs with a given set of aspect prefixes, as illustrated by the following examples:

(32) a. dígá *dīnīsīstsùz*
'I turned it (e.g., a piece of paper) around.'
b. dígá *dīnīsīstíh*
'I turned it (e.g., a stick) around.'
c. dígá *dínìsɣál*
'It revolved.'

For these reasons, the disyllabic element may be treated as an adverbial prefix of position 11 or as an independent adverb. It is, however, far from clear to what extent these adverbial elements (both monosyllabic and disyllabic) are separable from the rest of the prefix complex, either as independent phonological units or an optional syntactic (semantic) unit. A similar problem exists in the incorporated PP in position 12. A brief discussion on incorporation of stems and PP's is presented elsewhere (chapters 2 and 5). A detailed analysis of the incorporated PP is attempted in the following section.

7.40. INCORPORATED POSTPOSITION AND THEME DERIVATION.

The typical postpositional construction which fills position 12 has two constituents, a postposition preceded by a pronominal prefix or a noun

stem. Although rare, the postposition may be followed by another postposition. Like the adverbial of position 11, particularly the thematic adverbials, some PP's make up an obligatory constituent of the theme and others an optional constituent being bound phonologically to the prefix complex.

7.41. Thematic Postpositions.

The postpositional construction which constitutes the theme, together with the root, is illustrated by the following paradigm. The postposition *à-* 'like(ness)' is preceded by any one of the object prefixes. The stem is *-t'á* 'to be.'

(33) a. sàst'á ⟵ si-à$_{12}$#ni$_3$-s$_1$-t'á
'He's like me.'
b. nàst'á ⟵ ni-à$_{12}$#ni$_3$-s$_1$-t'á
'He's like you.'
c. màyīst'á ⟵ mi-à$_{12}$#γi$_6$-ni$_3$-s$_1$-t'á[2]
'He's like him.'
d. màníst'á ⟵ mi-à$_{12}$#ni$_3$-ni$_2$-s$_1$-t'á
'You're like him.'
e. gwàníst'á ⟵ gu-à$_{12}$#ni$_3$-ni$_2$-s$_1$-t'á
'You're like somebody.'
f. gìmāníst'á ⟵ gimi-à$_{12}$#ni$_3$-ni$_2$-s$_1$-t'á
'You're like them.'
g. ìdàníst'á ⟵ idi-à$_{12}$#ni$_3$-ni$_2$-s$_1$-t'á
'You're like yourself.'
h. mànīst'á ⟵ mi-à$_{12}$#ni$_3$-s$_2$-s$_1$-t'á
'I'm like him.'
i. gìmàyìst'á ⟵ gimi-à$_{12}$#γi$_6$-ni$_3$-s$_1$-t'á
'He's like them.'

The incorporated PP in each of the above verbs is "thematic" in the sense that it is an obligatory constituent of the theme.

The two forms above, (33c) and (33i), have an unusual construction with *γi-*. It is identified tentatively in the above analysis as a subject in position 6. In a more usual construction, that is, where no PP incorporation is involved, *γi-* represents a second third person (or 4p) object. Bearing this in mind one would expect **γást'á* and **gwáyìst'á* for (33c) and (33i) respectively. In an alternative analysis, *γi-* may be identified as γi$_7$- (object) where the subject is Ø or impersonal. Such an analysis is conceivable, but

how the elements are semantically mapped is beyond my comprehension.

The thematic nature of the incorporated PP and the identity of γi$_6$- is further indicated by the following impersonal theme which is based upon stem *-líɳ* (A), *-lìn* (B) 'to be:'

(34) 'to be good'
a. mágùnìlīh ⟵ mi-á$_{12}$#gu$_6$-ni$_5$-líɳ
'It (he/she) is good.' (goodness is in it)
b. ságùnìlīh ⟵ si-á$_{12}$#gu$_6$-ni$_5$-líɳ
'I'm good.'
c. nágùnìlīh ⟵ ni-á$_{12}$#gu$_6$-ni$_5$-líɳ
'You're good.'
d. nāhágùnìlīh ⟵ nahi-á$_{12}$#gu$_6$-ni$_5$-líɳ
'We/ye are good.'
e. gímágùnìlīh ⟵ gimi-á$_{12}$#gu$_6$-ni$_5$-líɳ
'They're good.'
f. ságùnìyīlìn ⟵ si-á$_{12}$#gu$_6$-ni$_5$γi$_3$-lìn
'I became good.'

In the above impersonal theme, the subject is marked by the impersonal subject prefix, *gu$_7$-*. In a related personal theme (36), the subject is marked by a personal subject prefix. Another thematic element in (34) and (36–37) is *ni-*.[3] This is not an aspect prefix as suggested by forms like (34f) and (36c) wherein γi$_3$- occurs as a perfective prefix. In any case, in the theme represented in (34), the postpositional construction consisting of postposition *á* preceded by one of the object prefixes is a co-constituent of the stem. It is interesting to note that the antonym of the theme (34) has exactly the same construction except for the added element following the postpositional construction, namely *tá-*, and the classifier:

(35) a. mátágùdlìh 'He's bad.' ('he's no good')
b. nátágùdlìh 'You're bad.'
c. sátágùdlìh 'I'm bad.'

The classifier in (34) is Ø and in (35) is D. The element which follows the postpositional, namely *tá-*, apparently renders (together with D) a 'negative' meaning, but it is not easy to determine its prefix position. Tentatively I assume that *tá-* is a thematic adverbial (i.e., *tá$_{11}$#*).

A pair of personal themes related to the above two impersonal themes are the following:

(36) a. mánìstɬīh ⟵ mi-á$_{12}$#ni$_5$-s$_2$-l$_1$-líh
'I like it.' (I'm fond of it)
b. ɣánìlīh ⟵ ɣi-á$_{12}$#ni$_5$-l$_1$-líh
'He likes it.'
c. mánīyìstɬìn ⟵ mi-á$_{12}$#ni$_5$-ɣi$_3$-s$_2$-l$_1$-lìn
'I liked it.'

(37) a. máts'ànīstɬà? ⟵ mi-á$_{12}$-ts'à$_{11}$#ni$_5$-s$_2$-là?
'I don't like it.'
b. sáts'ànīlà? ⟵ si-á$_{12}$-ts'à$_{11}$#ni$_5$-là?
'He doesn't like me.'
c. gwáts'ànīlà? ⟵ gu-á$_{12}$-ts'à$_{11}$#ni$_5$-là?
'He doesn't like them.'

Like the other two impersonal themes, these personal themes are built on stem *-líɳ, -lìn* (*-là?*) 'to be' (*-lìn* and *-là?* alternate as B forms). Like *tá#* of (35), *ts'à#* of (37) functions as a thematic adverbial, since both *tá#* and *ts'à#* have exactly the same semantic import in the respective negative theme. In these personal themes as well as in others, the PP is comparable to any other thematic adverbial in that it is not an optional constituent of the theme. The thematic or idiomatic nature of the incorporated PP is further illustrated by the following set of examples:

(38) a. máɣánìsīsdó ⟵ mi-ɣá$_{12}$# ni$_4$-si$_3$-s$_2$-dó
'I got married to her.' ('I have sat down for/with her')
b. áɣánīsdò ⟵ i-ɣá$_{12}$#ni$_4$-s$_2$-dò
'I'll get married (to someone).'
Cf. nísdò 'I'll sit down.'
sísdó 'I'm seated.'

(39) a. mík'áàdìsk'ó ⟵ mi-k'á$_{12}$#i$_7$-di$_5$-s$_2$-s$_1$-k'ón
'I'll burn it.'
b. gūk'áàgìdìsk'ólà ⟵ gu-k'á$_{12}$#i$_7$-gi$_6$-di$_5$-s$_1$-k'ón-là
'They burn it all up.'
Cf. dìk'ó 'It (e.g., tree) burns.'
dīsk'òn 'It's still burning.'

The derivational relationship between the two themes in (38) 'to get married' and 'to sit down' is beyond doubt, and the thematic nature of the incorporated PP is quite apparent. Similarly, in (39) the intransitive (impersonal) theme 'to burn' and the corresponding causative/transitive (personal) theme

'to burn something' are derivationally related. Assuming that *di$_5$-* is a gender marker (see 7.10), the derived causative/transitive theme contains two thematic elements, namely the thematic object in position 7 and a PP in position 12. This derived causative/transitive theme is a pseudotransitive, since the direct object (i.e., the thematic object in position 7) does not inflect. Then, it seems reasonable to assume that the thematic object always refers to the fire which burns on something in the causative theme, which translates more literally as '*x* cause *y* burn on *z*' where *y* refers to fire. This semantic analysis of the pseudotransitive theme makes sense when the two themes above in (39) are compared with the following:

(40) a. síst'á ⟵ si$_7$-s$_1$-t'á
'He burned me.'
b. síst'á ⟵ Ø$_7$-si$_3$-s$_2$-s$_1$-t'á
'I cooked (roasted) it (e.g. meat).'
c. nīstàsá?à ⟵ ni$_7$-s$_2$-s$_1$-t'às$_0$-á?à
'I'll burn you.'
Cf. dínít'às 'It (e.g. fruit) will ripen.'
dínìst'á 'It's ripened.'

It is obvious that the personal theme and impersonal theme in (40) are derivationally related.

The relationship between these two themes is, however, somewhat different from the two themes in (39), formally as well as semantically. Let us assume that personal themes derive from impersonal themes. Formally, in (39) the derivation of the personal theme involves not only the classifier (Ø/Ł) but also two thematic prefixes, the noninflective object in position 7 and the postpositional construction in position 12. On the other hand, the derivation of the personal theme in (40) involves the deletion of *dini* (position 5?) and the change of classifier. Furthermore, the derived personal theme in (39) is a *causative* whereas the personal theme in (40) is a noncausative. This difference between the two derived transitive themes provides an interesting insight into the semantics of the language. In the impersonal theme *dìk'ó* 'it burns,' the impersonal subject (which is unmarked) refers to 'fire;' that is, the argument of this proposition is 'fire,' which is not represented on the surface structure. In the impersonal theme *dínít'às* 'it ripens,' on the other hand, the impersonal subject which is unmarked refers to 'fruit'; that is, the argument of the proposition is 'fruit.' The semantic configuration of the causative theme (42) is *'x cause y* (fire) *burn on z'* where *z* is a flammable object. Apparently this type of semantic configuration is not possible in the derivation of the personal theme in (40). In other words,

such a semantic configuration as *'x cause y* (meat) *roast on z'* where *z* is a roastable object does not represent "a possible message" (McCawley 1970). This seems to explain why a causative is derived in one case and a noncausative in another.

7.42. Structure of PP: Thematic vs. Non-thematic.

The postpositional construction presented above has the form O + P where O is an object prefix and P a postposition. However, O may be represented by a noun. Following are two examples in which *tɬí* 'fire, smoke' and *tú* 'water' occur preceding the postposition *γì* 'into, under.'

(41) a. tɬíyìs?òh ⟵ tɬí-γì$_{12}$-s$_2$-Ø$_1$-?òh
'I'll put it into the fire.'
b. túwìis?òh ⟵ tú-γì$_{12}$-i$_7$-s$_2$-Ø$_1$-?òh
'I'll dip up water.' ('I'll put a container into the water.')

While a single noun like *tú* or an object prefix may occur in a postpositional construction which is thematic, a noun phrase of a simple or complex structure represents O in a postpositional construction which is non-thematic. This latter type of postpositional construction is comparable, semantically and phonologically, to nonthematic adverbials, particularly to disyllabic ones. This point will be further explored in the following section.

In the examples (42–43), the PP is an optional element, which modifies the theme. The postpositional construction in such a structure is different from those incorporated PP's as in (41) and many others, and is not part of the prefix complex.

(42) a. gústs'íy 'She is jealous.'
b. gúnìsts'íy 'I (woman) am jealous.'
c. sàγà gūsts'íy 'She is jealous of me.'

(43) a. māγà túsnìh 'I wring out water from it.'
b. γāγà túnìh 'He wrings out water from it.'
cf. āγàtúsníh 'I'm milking.'

(44) a. ískà? 'I'll beg.'
b. íyískà? 'I begged.'
c. mìts'ì ískà? 'I'll beg of him.'
cf. míts'ìískà? 'I'll beg of him.'

In (42c), the independent PP is an optional constituent, and it does not

change the theme but modifies it. The theme represented in (43) is a pseudotransitive theme with the incorporated noun *tú* 'water.' The postpositional constructions *māγà* and *γāγà* are nonthematic independent phrases. One of these independent postpositional phrases, namely *àγà* (i-γà) with the uninflecting object prefix *i-* (which is thematic) has apparently become thematic (lexicalized or idiomatized) in the theme 'to milk.' Notice that the thematic use of the object prefix (*i* ⟶ *a*) in the postpositional construction is exactly the same as its use as a thematic object in secondary themes like a pseudotransitive (41b).

The postpositional construction which is semantically part of a given theme and morphologically part of a given prefix complex has a simpler structure in that both O and P are represented by a single monosyllabic element. On the other hand, the postpositional construction which represents an independent phrase may have O represented by a noun phrase and P by more than one postposition. Consider the following examples:

(45) a. mītsìláγà sísxàɬt
'I clubbed him at the top of his head.'
mi-tsì-lá-γà
'his-head-top-at'
cf. si-tsì-lá-γà
'my-head-top-at'
b. tsák'àts'ì mīk'àástɬáh
'I sharpen it (e.g., knife) on the rock.'
tsá-k'à-ts'ì
'rock-on-to'
mi-k'à$_{10}$-i$_7$-s$_2$-láh
'it-on-it-I-make' 'I sharpen it (its edge).'

In the PP of (45a), O is represented by an NP *mī-tsì* 'his head' and P by two postpositions *lá-γà* 'at top.' The NP which represents O of the PP is not restricted in the way that the incorporated noun stems are. Of all examples, (45b) most clearly illustrates two types of postpositional constructions by having both in one sentence. In the independent PP, O is represented by an NP (which happens to be a single noun) *tsá* 'rock' and P by two postpositions. Besides this PP, the verb has an incorporated PP, in which O is represented by a pronominal prefix and P by only one postposition. This postpositional prefix *mí-k'à*$_{12}$- being thematic represents the verbal theme of the sentence along with the thematic object *i*$_7$- and the stem *-láh* 'to do, make.' This theme, therefore, is pseudo-transitive, having the same structure as (41b). In short, the two postpositional constructions are distinguished from

each other by having different morphological structures and semantic relationships with respect to the theme. The fact that both types of postpositional structures occur in the same sentence as in (45b) clearly indicates that the two are not mutually exclusive; hence they represent two different syntactic characteristics.

Further phonological and syntactic evidence that distinguishes the two types of postpositional constructions is available from such data as the following:

(46) a. ādáɣááɣá dìní sīst'à?ī
who-for this you-cooked-Q
'Who did you cook this for?'
b. īdáɣá (sīst'à?á?à)
oneself-for (I-cooked)
'For myself (I cooked).'
c. náɣá (sīst'à?á?à)
'For you (I cooked).'
d. sízāáɣá (sīst'à?á?à)
'For my son (I cooked).'

Notice that the PP with the postposition *ɣá* 'for' alone may represent an utterance as an answer to a question (46a). The theme '(man) to marry' (47) derives from the stem *-dó* 'to sit' and the incorporated PP, O + *ɣá*. In this theme, the thematic PP alone cannot be used as an utterance, but the noun which represents O can be as follows:

(47) a. ādáɣáɣánìsdó?ī 'Who did he marry?'
b. yáɣánìsdó 'He married her.'[4]
c. sìíts'à ɣánìsdó 'He married my daughter.'
d. sìíts'à 'my daughter'
*sìíts'à ɣá

It may very well be that the postpositional construction *sìíts'à ɣá* can constitute a postpositional phrase in a different construction, in which case it may represent an utterance. In the above derived theme, however, it is a co-constituent of the stem *-dó*. A very important point to be noted here is that the incorporated P cannot be separated from the rest of the prefix complex, while the NP which constitutes a PP along with the P can be. This is shown by (47c) where the NP *sìíts'à* 'my daughter' is being separated from P *ɣá* which is incorporated. In other words, what can be incorporated is either

a P or a P prefixed by a pronominal prefix or a single noun of a limited class. This is the reason that the PP in (47) cannot be used as an independent utterance.

The pseudotransitive theme corresponds to the theme Kari (1981a) calls "themes with thematized PP object." He makes a distinction between the "unbound" PP's that occur freely with verbs without any effect on the verb morphology and the "bound" PP's whose distribution is restrictive, particularly with respect to prefixes and suffixes that mark aspect and mode. The role of PP's in the process of theme derivation should be investigated further, but the present study is constrained by the lack of adequate data.

7.50. LIST OF POSTPOSITIONS.

The meanings of some postpositions are transparent; others are not, as is the case of many other grammatical morphemes. For this reason, no exhaustive list of postpositions can be made at this time. Even in a partial list, positive identification of certain postpositions poses problems. With these difficulties in mind, I shall attempt to present, in random order, what I think are reasonably clear cases.

7.51. Monosyllabic Type.

The postpositional constructions with one monosyllabic postposition include the following:

(48) *à* in *sà-* (⟵ si-à) 'like me,' *mà-* (⟵ mi-à) 'like him,' etc.
a. sàst'á 'He's like me.'
b. màst'íh 'I act like him.'
c. sàdínī 'You talk like me.'

(49) *à* in *mà-* (⟵ mi-à) 'on it,' *sà-* (⟵ si-à) 'on me,' etc.
a. màdísnìh 'I'll feel it (put my fingers on it).'
b. sàdīnìh 'He'll feel me.'
c. ɣàdīnìh 'He'll feel it.'

(50) *à* in *ná-* (⟵ ni-á) 'onto you,' *sá-* (⟵ si-á) 'onto me,' etc.

a. nádìnìsk'ó 'I'll stick it onto you.'
b. sádìnīsk'ó 'You'll stick it onto me.'

(51) *γà* in *sāγà-* (← si-γà), etc. 'for me, to me, of me,' etc.
a. nàγà yástɬíh 'I'm ashamed of you.'
cf. īyáàstɬíh 'I'm ashamed.'
b. màγàànìsós 'I'll frighten him.'
sáγàànízòs 'You frighten me.'
c. sāγà nīsdzít 'She is fed up with me (has had enough of me).'
γāγà nìsdzít 'He's fed up with it.'
d. māγà túsnìh 'I'll wring out water from it.'
γāγà túnìh 'He'll wring out water from it.'
mīts'ùwàγà túts'ìnìí 'milk cow (the one from which they milk)'
e. γāγà tázáná?ó 'He abused him.'
f. màγà yísnó 'I'm looking after it.'
γāγà yínó 'He's looking after it.'
g. sàγà gústs'í 'She is jealous of me.'
cf. gústs'í 'She is jealous.'
h. gúγà gùsnáh 'I talk for somebody (an interpreter).'
i. sāγànáʔòh 'Give it (e.g., a rock) to me.'
sāγànístsús 'Give it (e.g., a blanket) to me.'
sāγànítìh 'Give it (e.g., a stick) to me.'

In (51) are listed nine sets of examples in which the postposition *γà-* (note low tone) occurs. These nine sets are not intended to be exhaustive. Whether *γà-* in these verbs represents one or more morphemes is extremely difficult to determine here. The semantic problems indicated in these examples are the same as those of English prepositions. In (52) are listed three sets of examples in which *γá-* occurs in the postpositional construction. As indicated by the tone as well as the glosses, it would be safe to assume that *γá* (note high tone) in (52) is different from *γà* in (51).

(52) a. máγáànīsgīz 'I stuck something into (through) it.'
γáγáànīsgīz 'He stuck something into it.'
b. màγádìnīsníh 'I'll stick my finger through it (making a hole).'
γāγádìníh 'He'll stick his finger through it.'
c. māγá dìnīsdīz 'I've bored a hole in it.'
māγá dìnīsdís 'I'll bore a hole in it.'

The meaning of P in the above examples, which is rather transparent, may be translated as 'into, through.' The semantic contrast between *γà* of (51d) and *γá* of (52b) is particularly interesting. Both themes are based on the same stem, namely *-níh* 'to do with one's hand (finger),' and the semantic difference between the two themes is attributable mainly to the two different P's. More difficult to determine is the identity of *γá* in an abstract or idiomatized theme such as the following:

(53) a. áγánìsdó 'He got married.' (cf. *-do* 'to sit')
b. máγánìsīdó 'I got married to her.'
c. áγánísdò 'I'll get married.'

(54) a. máγáàst'à 'I pity him.'
b. sáγáàt'à 'You pity me.'
c. máγáàyìst'à 'I've pitied him.'

(55) a. náγá ànìst'íh
'I'll praise you (for brave deeds in form of song).'
b. sáγá ànìt'íh 'You'll praise me.'

(56) a. γāγádádlùh 'He laughs at him.'
b. māγádìyìsdlùh 'I laugh at him.'

In (39) is shown a derived theme incorporating PP *mīk'á* 'on it.' The following are a few more examples of themes that have the same incorporated PP.

(57) a. mīk'ánìstsíl 'I broke it (threw a rock on its top).'
cf. dìsīstsíl 'I've thrown it (e.g., a rock).'
b. mīk'ánìsyìs 'I'll break it (e.g., a stick).'
cf. áxànìnīsyìs 'I'll bend it.'
c. īdīk'áàyìstsús 'I'll cover myself with it (e.g., a blanket).'
cf. sīk'ááyìyīstsús 'On top of me you'll spread it out.'
ànàdīstsús 'I'll lose it (cloth).'
sīstsùz 'It (cloth) is lying.'
d. mīk'ááyīsyád 'I'll dust it off (shake it on its top).'
cf. yīsyád 'I've shaken it.'
e. sík'á túnìyā 'I'm sweating (on me water moves).'

Other monosyllabic postpositions include the following:

(58) *gò* as in *sīgò* 'with me, in my possession'
a. sīgòts'ídùwà
'There is nothing with me (in my possession).'
b. yīgònàníyā 'She got married to him' (cf. *-yáh* 'to go')
cf. áγánìsdō 'He got married.' (= 56)

(59) *yì* as in *míyì-* 'into, under it'
a. míyìcóh (⟵ mi-yì-s-yáh)
'I'll wear it (go under it).'
b. míyìsísdó
'I'm wearing it (am sitting under it).'
c. tɬíyìsʔòh 'I'll put it into the fire (smoke).' (=44)

(60) *tó* as in *mītó-* 'amongst them'
a. mītóòstɬíh 'I taste amongst them.'
b. mītóóstsīn 'I smell amongst them.'

(61) *ts'í* as in *míts'í-* 'from him,' etc.
a. míts'ídācō 'I walked away from him.'
b. átɬìts'í gídìsmàγ 'They went on the warpath against each other.'

(62) *tsʔ* as in *gímítsʔ-* 'against them'
a. gímítsʔ dīsáàmòγ 'We went on the warpath against them.'
b. átɬìtsʔ gídìsmòγ 'They went on the warpath against each other.'

(63) *kó* as in *míkó* 'for it'
a. míkó dìdístsídī 'I'll reach for it later.'
b. míkó yìdīcʔìc 'I'm looking for it.'
c. míkóòcícwú 'I'm on the lookout for it.'

(64) *kà* as in *gīmīkà* 'after them'
a. gīmīkà nàyìstɬá 'I'm chasing them (running after them).'
b. gūkà nàyìɬtɬá 'He's chasing them.'
c. yīkà nàyīɬtɬá 'He's chasing him.'
cf. dīstɬá 'I run.'

(65) *ih* as in *sih* 'with me'
a. sìh gūdīdīzíd 'It'll take a long time for (with) me.'

b. mìh átɬīdīsdlà 'I'll have a fight with him.'
c. gūh ást'íh 'I'll play with it (gamble).'

7.52. Disyllabic Type.

As shown in (45), some postpositional constructions have two postpositions; that is, they are compounds. Aside from the clear cases of two postpositions in one construction, there are a number of disyllabic forms of postpositions which may or may not be the case of two postpositions in juxtaposition. Following are a few examples:

(66) *γáyí* as in *màγáyí* (⟵ mi-γáyí)
a. màγáyí yíst'ùw 'You missed it in shooting.'
b. máγáyì yìcō 'I missed him (walked towards him but missed).'

(67) *ágà* as in *kwāágà* (⟵ kù-agà) *kú* 'wood'
a. kwāágàdīláh 'make a fire' (*-láh* 'to make, do')
b. kwāágàdīstɬóh 'I'll make a fire.'

(68) *ádì* as in *sádì*-(si-ádì) 'without me'
a. sádìdìyáh 'He'll leave me (go without me).'
b. mádìdìcóh 'I'll leave him.'

(69) *nígí* as in *mínígí* 'with it'
a. mínígí gwánìstɬīh 'I'm pleased with it.'
b. sínígí gwánìlīh 'He's pleased with me.'

Many postpositional constructions of locative expression which present a similar analytical problem include *mì-yīγā* 'under it' (cf. *yì* 'into, under'), *si-ʔònā* 'on the other side from me,' *mī-tót'ā* 'inside it' (cf. *tó* 'amongst'), *mí-nàdá* 'over it (not touching),' *tú-nòsìʔ* 'upstream, against water' (cf. *mí-nòsìʔ* 'against it,' *nísts'ínòsìʔ* 'against wind'), *mī-zīdà* 'in front of it,' *sí-ts'ìsìʔ* 'towards me' (cf. *sí-ts'ìʔ* 'to me'), *mī-nák'á* 'in back of it,' etc.

Just as the adverbials of position 11 are of two types, one which is thematic and another which is nonthematic (modifier), the postpositional constructions bound to the verb are of the two types. The prefix position 12 is motivated by the incorporated PP of the thematic function.

8

Person Categories and Pronominal Prefixes

8.00. INTRODUCTION.

The pronominal prefixes, which inflect for person and number, are basically in two sets, one for the subject occurring in position 2 or 6 of the verb prefix complex, and the other for the object occurring in position 7 of the verb prefix complex or prefixed to the noun or postposition. These sets of pronominal prefixes as well as independent pronouns (discussed in 2.32) share similarities in phonological shapes, as well as in grammatical and semantic properties.

The most difficult problem in the analysis of pronominal prefixes is the formal contrast made in the third person category, particularly the object prefixes. I shall, therefore, proceed with the subject prefixes before approaching the object prefixes.

As discussed in chapter 2 (see 2.26), the semantic interpretation of the grammatical distinctions made in the person categories (e.g., sg vs. pl) is dependent upon the distinction made in the verb stem. Similarly, optional deletion of some personal prefixes is constrained in part by the semantic properties inherent in the stem. This simply suggests that there is close interaction between syntax/semantics and morphology. Hale (1973) observed that the choice of two object prefixes in Navajo is constrained by a syntactic rule of NP inversion. This constraint appears to be a pan-Athapaskan phe-

nomenon (see Hofer 1974 for a similar rule in Sarcee). The choice of the so-called "deictic" subject (see below) instead of Ø or *gi-* is not likely to be explained fully by a syntactic constraint. While the data are insufficient to study syntactic and semantic details of the pronominal prefixes, this chapter is primarily concerned with the formal (morphological) contrasts.

8.10. SUBJECT PREFIXES.

The first and second person subject prefixes, which occur in position 2, are straightforward, showing the contrast between the singular and plural. The only form which is often phonologically opaque is ni_2- (2sg), which may be deleted. The third person subject prefixes are not so straightforward because there are two additional categories of distinction.

8.11. First and Second Person.

The table below summarizes the first and second person subject prefix system.

Number \ Person	1	2
sg	s	ni
pl	aad	as

Table 1. Subject prefixes: first and second person.

The following are typical examples in which the forms in table 1 are found:

(1) a. dínísɣàl ⟵ di_5-ni_3-s_2-ɣàl 'I am round.'
b. dínāāɣàl ⟵ di_5-ni_3-aad_2-ɣàl 'We are round.'
c. dīníɣàl ⟵ di_5-ni_3-ni_2-ɣàl 'You are round.'
d. dīnāsɣàl ⟵ di_5-ni_3-as_2-ɣàl 'Ye are round.'

As discussed in chapter 11, ni-$_2$ in (1c) deletes, imparting the tone sandhi. Other phonological changes, particularly those involving aad_2- are also discussed in chapter 11.

8.12. Third Person.

More complicated formal distinctions of this category of prefixes are shown in table 2a.

Personal			Impersonal
	specified	unspecified	
sg	Ø	ts'i	tc'i, gu
pl	gi		

Table 2a. Third person prefixes.

The zero (unmarked) subject is assigned an arbitrary prefix position. It may be assigned to position 2 along with the first and second person prefixes or position 6 along with other third person subject prefixes. For the presentation of this data in this chapter, the latter position is assumed. *gi-* may be analyzed in two different ways because of its uncertain identity and flexible prefix position. It may be identified as 3pl subject prefix or as a plural morpheme, in which case 3pl subject should be identified as *gi-Ø*.[1] The latter alternative is attractive when its prefix position vis-à-vis γi_7- and mi_7- is considered. Preceding the 3pl object prefix mi_7-, it optionally marks plurality (cf. *mísdzùs* 'I am trapping *them*' vs. *gīmīdílò* 'lead them!'). In other words, *gi-* is not treated as a person marker. This analysis is reflected in table 2b.

Personal		Impersonal
specified	unspecified	tc'i, gu, Ø
Ø	ts'i	

Table 2b. Third person prefixes: alternative analysis.

A disadvantage with this analysis is that a separate prefix position has to be provided for *gi-*. If the position is always fixed, it may have some merits, but it precedes mi_7- (specified) as shown above, and it follows i_7- (unspecified) as in *īgīdīsʔàz* 'they have kicked something,' and *īsīdīsnàh* 'they will swallow (food).' *gi-* optionally marks plurality of third person either for subject or object but not for both within a verb; that is, *gi-* co-occurs either

with mi_7- or $Ø_6$-, but not with both within the same prefix complex. In either analysis, a rule of metathesis is required to place *gi-* properly with respect to mi_7- and i_7-. For these reasons, I have opted for the first alternative reflected in table 2a.

The three personal third person subject prefixes, including zero, are exemplified by the following forms which constitute a paradigm with those presented earlier (1).

(2) a. díγàl ⟵ $Ø_6$-di_5-ni_3-γàl 'He is round.'
b. gīdíγàl ⟵ gi_6-di_5-ni_3-γàl 'They are round.'
c. ts'īdíγàl ⟵ $ts'i_6$-di_5-ni_3-γàl 'Someone is round.'

The cognates of $ts'i_6$- have been called "deictic subject" or "indefinite subject." Neither of these terms is self-explanatory, nor do they make an adequate distinction vis-à-vis the other two third person subject prefixes. Textual contexts suggest that $ts'i_6$- is chosen instead of Ø or *gi-*, not necessarily because the identity of the subject in question is unknown or unspecified, but because such an identity is irrelevant or redundant in a given context. An expression like *áts'īnílāà* 'someone said' before a quoted sentence frequently occurs in texts where the speaker's identity is already known in the discourse. Further details of the use of $ts'i_6$- necessarily involve object prefixes (see below).

Some impersonal verb themes are subjectless, or the subject is marked by one of the two impersonal subject prefixes shown in table 2b.

As shown in the previous chapter, mediopassive themes do not have a subject. The mediopassive forms in (26–27) of the preceding chapter are cited here for further discussion.

(3) a. nàmídlī ⟵ $nà_{11}$#mi_7-d_1-lī 'He is expected.' (there is an expectation for him)
b. nàsídlī ⟵ $nà_{11}$#si_7-d_1-lī 'I am expected.' (there is an expectation for me)

There is no personal subject in these forms. One may wish to consider that these forms have a zero subject, but this zero should be distinguished from the zero of "personal (specified) sg." (Ø) because only in the presence of the latter subject is the third person singular object γi_7- rather than mi_7- (see below for further discussion). Examples with subject gu_6- include the following:

(4) a. gùsk'óz ⟵ gu_6-s_1-k'óz 'It's cold.'
b. gùdīsγál ⟵ gu_6-di_3-s_1-γál 'It's getting dark.'
c. gūtín ⟵ gu_6-tín 'It will freeze.'

This use of the impersonal subject is comparable to English 'it' when it is used as a "meteorological subject."

The rare occurrence of *tc'i-* is found in the following themes among others:

(5) a. ìtc'ítɬóh ⟵ i_7-tc'i_6-tɬóh 'There is a lot of it.'
b. ìtc'ìgúlíh ⟵ i_7-tc'i_6-gu_5-líh 'There is/are some.'
c. ìtc'ídùwà ⟵ i_7-tc'i_6-dùwa 'There is none.'

These themes are based on stems *-tɬóh* 'to be many/much' in (5a), *-líh* 'to be' in (5b), and *dùwà* 'to be absent.' These themes are pseudotransitive with the thematic object prefix in position 7.

From the discussion of (4), one would expect gu_6- in the following themes, but *tc'*i_6- is found instead:

(6) a. náàtc'ìctɬìyìc ⟵ $ná_{10}$#i_7-tc'i_6-s_1-tɬ'ìyìc
'It lightnings.'
b. nínáàtc'ìyīctɬ'ìyìc ⟵ $ná_{11}$-$ná_{10}$#i_7-tc'i_6-γi_3-s_1-tɬ'ìyìc
'It lightnings again.'
c. náàctɬìyìc ⟵ $ná_{10}$#i_7-s_1-tɬ'ìyìc
'It flares.'

This use of impersonal subject is quite comparable to that of $\acute{k}^{y}i_8$- in Hupa "noise" themes, especially if the sound effect of lightning is considered.

8.20. OBJECT PREFIXES.

This set of prefixes has a wider distribution, occurring in position 7 in the verb prefix complex and prefixed to the noun and postposition. As shown in chapters 5 and 6, the object prefix may be "thematic," or an incorporated noun may have the function of object. The third person object prefixes include *mi-*, *i-*, *γi-*, *gimi* (*gi-mi*), and zero. The last of these may be accountable by a deletion rule from a syntactic point of view, but it is not yet clear how these third person forms contrast semantically or otherwise. The homophony of *gu* also causes considerable analytical difficulty.

8.21. *First and Second Person.*

As is the case with the subject prefixes, the first and second person object prefixes present no analytical problem. Table 3a shows two alternate phonological forms for the plural, but the person distinctions become neutralized, since there is only one form for the first person plural (inclusive or exclusive) and the second person plural. In other words, the form means either 'we' or 'you (pl.).'

Number \ Person	1	2
sg	si	ni
pl	nihi ~ naa	

Table 3a. Object prefixes: first and second person.

The following verbs exemplify the distribution of the object prefixes in position 7.

(7) a. sì?ás ⟵ si_7-?ás 'He'll kick me.'
b. nìhì?ás ⟵ $nihi_7$-?ás } 'He'll kick us/you (pl).'
c. nāà?ás ⟵ naa_7-?ás }
d. nìts'ā?ás ⟵ ni_7-ts'i_6-?ás 'Someone will kick you (sg).'

8.22. *Third Person.*

The object marking system in the third person is much more complicated than its subject counterpart, partly because it includes the reflexive and reciprocal prefixes. I shall deal with nonreflexive-nonreciprocal object prefixes first.

In dealing with object prefixes in position 7 of transitive verbs, the first thing to be made clear is a distinction between a "true" transitive and what I call a "pseudotransitive." The former has a set of fully inflecting object prefixes, whereas the latter has either a thematic object prefix i_7- or an incorporated noun. The thematic object prefix may be historically related to i_7- (unspecified 3sg object prefix) which contrasts with *mi-* or ∅ (specified 3sg object prefix). From the examples cited below it is clear that the thematic prefix does not contrast with any other object prefix in the way that the nonthematic prefix does. In (8), the thematic object prefix has a designated

referent (i.e., 'property'), while in (9) the nonthematic object prefix does not have such a referent but contrasts with *mi*$_7$-, Ø$_7$, or *yi*$_6$-, as the case may be (see below).

(8) a. ìnìstɬóh ⟵ i$_7$-ni$_3$-s$_2$-s$_1$-tɬóh 'I have a lot of property.'
b. ìnístɬóh ⟵ i$_7$-ni$_3$-ni$_2$-s$_1$-tɬóh 'You have a lot of property.'
c. ístɬóh ⟵ i$_7$-ni$_3$-s$_1$-tɬóh 'He has a lot of property.'
d. nāstɬóh ⟵ ni$_3$-as$_2$-tɬóh 'Ye are many.'
e. nāātɬóh ⟵ ni$_3$-aa$_2$-tɬóh 'We are many.'

(9) a. íyíyìsnīh ⟵ i$_7$-yi$_5$-yi$_3$-s$_2$-l$_1$-nih 'I was jealous (of somebody).'
míyíyìsnīh ⟵ mi$_7$- ... 'I was jealous of *him*.'
b. ídístsàɬ ⟵ i$_7$-di$_4$-Ø$_3$-s$_2$-Ø$_1$-tsaɬ 'I'll throw something.'
dístsàɬ ⟵ Ø$_7$- ... 'I'll throw *it*.'
c. ídítsàɬ ⟵ i$_7$-Ø$_6$-di$_4$-Ø$_3$-Ø$_1$-tsàɬ 'He'll throw something.'
yídítsàɬ ⟵ yi$_7$- ... 'He'll throw *it*.'

The derivational relationship between the pseudotransitive (8a–c) and the descriptive (8d–e) themes are obvious. Unlike the object prefixes in (7), the thematic prefix in the pseudotransitive theme is not replaceable by any other object prefix.

The grammatical function of the thematic object prefix is identical to that of the incorporated noun, which appears in another type of pseudotransitive (reflexive) theme. Consider the following:

(10) a. tcìct'óc ⟵ tsì$_9$-Ø$_3$-s$_2$-d$_1$-ʔóc 'I'm nodding (my head).'
b. tcìnìt'óc ⟵ ... ni$_2$- ... 'You're nodding (your head).'
c. tcìt'óc ⟵ ... Ø$_6$- ... 'He's nodding (his head).'

In the above analysis the incorporated noun is assumed to fill position 9, a single prefix position postulated for all incorporated stems (nouns or verbs). Notice in (10) that there is no object prefix; that is, the incorporated noun is mutually exclusive of the object prefix. Therefore, it may very well be that the incorporated noun, which is the object of the theme, fills position 7 instead of position 9.

Having identified thematic object elements in pseudotransitives, I shall now consider third person object prefixes in true transitives. In table 3b is given an inventory of third person object markers:

specified		unspecified		locative
sg	mi ~ i ~ Ø yi	human	gu	gu
pl	gi-mi[3]	nonhuman	i	

Table 3b. Object markers: third person.

Table 3b lists four forms that mark the third person singular specified object. What governs the choice of *mi-*, *i-*, or Ø is not yet fully understood. The behaviour of *yi*$_7$- cannot be adequately described without relating it to syntactic rules. The following are offered as preliminary observations.

It is obvious that *mi-*, *i-*, and zero are allomorphs, the alternation of which is not conditioned phonologically. What morphological condition governs the alternation is not certain, but the observation made in chapter 5 seems to point to the right direction. The data presented in 5.53 indicate that *mi-*, *i-*, and zero occur mutually exclusively in the seriative, momentaneous, and semelfactive paradigms respectively, which are related derivationally by having the same root. How these allomorphs are distributed with respect to other aspectual paradigms cannot be determined at this time. Meantime, consider the following data in which the three alternate with *yi-*.

(11) mi- vs. yi-:
a. mísnō (mi$_7$- ...) 'I'm eating it.'
b. yísnō (yi$_7$- ...) 'He's eating it.'
c. ísnō (i$_7$- is unspecified object) 'I'm eating (something).'

(12) Ø vs. yi- :
a. nànìsgás (nà$_{11}$#Ø$_7$- ...) 'I'll brush him down.'
b. nàyìnìsgás (nà$_{11}$#yi$_7$- ...) 'He'll brush him down.'
c. nàsìnìsgás (nà$_{11}$#si$_7$- ...) 'He'll brush me down.'
d. nàgùnìsgás (nà$_{11}$#gu$_7$- ...) 'He'll brush someone down.'

(13) i- vs. yi- :
a. ìnīsyīl (i$_7$- ...) 'I struck him.'
b. yìnísyīl (yi$_7$- ...) 'He struck him.'
c. nìnísyīl (ni$_7$- ...) 'He struck you.'
d. sìnísyīl (si$_7$- ...) 'He struck me.'

The specified singular object is marked by *mi*$_7$- in (11), by Ø$_7$- in (12), and by *i*$_7$ in (13) where the subject is first person singular (*s*$_2$-), whereas in all three sets of examples, the 3sg object is marked by *yi*$_7$- where the subject is third

person singular (zero). The alternating three 3sg object forms occur in a theme where the subject prefix is other than $Ø_6$- or gi_6- (3p specified; see table 2b).

That γi_7- occurs in the object position only where the subject position is filled by one of the two third person specified personal prefixes is further illustrated by the following examples:

(14) a.	yìʔàs	(γi_7- $Ø_6$- ...)	'He'll kick him.'
b.	gìyìʔás	(γi_7-gi_6- ...) (note metathesis)	'They'll kick him.'
c.	ts'àʔás	($Ø_7$-ts'i_6- ...)	'Someone will kick him.'
d.	gìmìts'àʔás	($gimi_7$-ts'i_6- ...)	'Somebody will kick them.'

Notice that γi_7- does not occur where the subject is unspecified third person ($ts'i_6$-) as in (14c–d).

8.23. Correlation between Subject and Object Prefixes.

The data in (14) indicate co-occurrence restrictions between subject prefixes and object prefixes, some details of which are examined below. Since no impersonal subject prefix occurs in a true transitive theme, only personal prefixes are considered (see table 2b). Neither are the first and second person prefixes considered here because, except where reflexive and reciprocal relations hold, there are virtually no restrictions between the first and second person subject and object. This means that only $Ø_6$-, gi_6-, and $ts'i_6$- need to be investigated, vis-à-vis object prefixes. In table 4, mi_7- represents any one of three (*mi-*, *i-*, or Ø-) mutually exclusive object forms. Similarly, gu_7- represents either gu_7- or i_7- (unspecified), since the choice between the two depends upon other selectional restrictions which do not bear upon the problem at hand. Each element in the table is marked as [+s] for "specified" and [−s] for "unspecified." X means that the two elements co-occur in a given verb form.

Subject \ Object		mi_7- [+s]	$gimi_7$- [+s]	γi_7- [+s]	gu_7- [−s]
[+s]	$Ø_6$-			X	X
[+s]	gi_6-			X	X
[−s]	$ts'i_6$-	X	X		X

Table 4. Correlation between subject and object prefixes.

From this table one can see that the only case in which both the subject and object are specified is the combination of $Ø_6$- or gi_6- plus γi_7-; in all other possible pairs, either one or both are unspecified. Ungrammatical strings as predictable from table 4 include those in (15), which are absent from the paradigm of (14).

(15) a.	*gìmīʔás	'He ([+s]) will kick them ([+s]).'
	cf. gūʔás	'He will kick them ([−s]).'
b.	*gìmìgīʔás	'They ([+s]) will kick them ([+s]).'
	cf. gùgīʔás	'They ([+s]) will kick them ([−s]).'

It is unlikely that the restriction is governed semantically, and there must be grammatical sentences that express the intended meanings of (15a–b). Within the limited data, it is impossible to determine what governs the restrictions shown in table 4.

In (11b) and (12b) is shown the correlation between γi_7- and $Ø_6$-; that is, if the subject of the sentence (where represented by a single verb) is $Ø_6$- or gi_6-, then the object is marked by γi_7-. This is apparently a pan-Athapaskan rule. While this prefix is often considered as a fourth person and comparable to the obviative in Algonquian, the morpho-syntactic behaviour of this prefix is far from clear. Particularly difficult to analyze are the forms like the following:

(16) a.	γàt'íh	⟵ γi-$à_{12}$-$Ø_6$-t'íɳ	'He ($Ø_6$-) does like him (γi-).'
b.	māyīt'íh	⟵ mi-$à_{12}$-γi_7-t'íɳ	'It (γi-) does like him (*mi-*).'
(17) a.	gwāt'íh	⟵ gu-$à_{12}$-$Ø_6$-t'íɳ	'He does like them (*gu-*).'
b.	gìmāyìt'íh	⟵ gimi-$à_{10}$-γi_7-t'íɳ	'It does like them (*gimi-*).'

Two third persons are involved in the above forms, one as subject and the other as copied pronoun (or object) of a PP (incorporated). Particularly difficult to understand are the (b) sentences in which γi- apparently fills a subject position. However, one point is clear: γi- refers to a second third person (or fourth person), in contradistinction to either Ø- or (gi)mi_7-.

It should also be mentioned that γi_7- does not occur in the object position if an underlying object NP is present immediately preceding the verb (see Hofer 1974). In other words, γi_7- occurs where an underlying object NP has been deleted or moved out of the underlying position. A similar rule is observed in other Athapaskan languages (see Hale 1973).

8.24. mi- vs. Ø vs. i- in Related Themes.

Returning to table 3b, I have suggested that the alternation of the three specified object prefixes (*mi-*, Ø, *i-*) observed in many verbs is conditioned in part by the aspectual paradigms. In (8), the pseudotransitive forms which contain thematic i_7- suggest that *i-* instead of *mi-* or Ø appears in a derived theme. Another example in which *i-* occurs in a derived theme is given below:

(18) a.	ɬyísíɬ	(i_7- . . .)	'I'm heating it.'
b.	ɬísìl	(yi_7- . . .)	'He heated it.'
c.	ɬísísìl	(i_7- . . .)	'I heated it.'

This transitive theme, in which i_7- occurs instead of mi_7- or $Ø_7$-, obviously derives from the following intransitive theme:

(19) a.	nísìl	⟵ ni_3-s_1-zìl	'There is a warm breeze.'
b.	dísíɬ	⟵ di_4-s_1-zíɬ	'There will be a warm breeze.'

The *mi-* and *i* alternation between two related paradigms is best exemplified by the seriative and momentaneous paradigms of a succession theme:

(20)	Seriative		Momentaneous	
a.	*mí*s?ás	'I'm kicking him.'	ìnīs?ás	'I'll kick him.'
b.	*mí*sgúɬ	'I'm punching him.'	ìnìsgúɬ	'I'll punch him.'
c.	*mí*sì	'I call him.'	ìnīsí	'I called him.'

The following paradigms, however, constitute an exception to this consistent alternation, and I have no explanation as yet.

(21)	Seriative		Momentaneous	
a.	*mí*cùɬ	'I'm blowing it.'	nìcùɬ	'I'll blow it.'
b.	*mí*nìcùɬ	'You're blowing it.'	ɬnícùɬ	'You'll blow it.'
			*nícùɬ	

In the momentaneous paradigm of (21), the object prefix is $Ø_7$ in (a) instead of i_7- as in (b). The zero object prefix is not what is expected of a momentaneous paradigm of the succession theme category.

It should also be pointed out here that i_7-, which is an allomorph of 3sg specified object prefix, is distinct from two homophonous object prefixes, 3sg unspecified prefix and the thematic object prefix. These homophonous prefixes should also be distinguished from the so-called peg *i-*, which is discussed in the next section.

8.25. mi-Deletion and Peg i-.

Another regular phenomenon observed with respect to object marking in the prefix complex is that the object prefix is absent where the underlying object NP is present immediately preceding the verb. It really does not matter, as far as the main issue is concerned, whether to treat it as a deletion process by which the prefix in question is eliminated in the presence of the independent object NP or as a case of pronoun copy being blocked. For the sake of argument, I shall assume the former is true. Consider the two sets of examples below:

(22) a.	xín	ícyìn	(⟵ s_2-γ^yìn)[2]	'I sing a song.'
	song	I-sing		
b.	mícyìn			'I sing it.'
(23) a.	nīnìɣá	ísdzús	(⟵ s_2-dzús)	'I trap a bear.'
	bear	I-trap		
b.	mísdzús			'I trap it.'

In both (22a) and (23a), s_2- is the only conjunct prefix and *i-* is a peg element (not an object prefix), which is introduced where there is no other syllabic prefix. The two examples below further illustrate this point:

(24) a.	dìní tsì*i*lìh	'He'll hire the man.'	(tsì#. . .)
b.	tsì*yi*lìh	'He'll hire him.'	(tsì#γi-. . .)

What holds between mi_7- and peg *i-* in (22–23) is parallel to what holds between γi_7- and peg *i-* in (24), where mi_7- and γi_7- are mutually exclusive allomorphs. The data presented in this section further suggest that even a rudimentary analysis of the subject-object marking system will not be possible without recourse to both syntax and phonology.

8.26. gu_7- vs. i_7-.

In table 3b are given three forms of object prefixes: specified, unspecified, and locative. As an unspecified object prefix, gu_7- contrasts with i_7- in

a given verb in which either may occur. On the other hand, some verbal themes may choose only one of the two, as governed by the syntactic and semantic properties of the verb; that is, the selectional restrictions with respect to the choice of an object.

(25) a. nīct'ùj ⟵ $Ø_7$-ni_2-s_1-t'ùj 'You suckle him.'
b. gúct'ùj ⟵ gu_7-ni_2-s_1-t'ùj 'You suckle somebody.'

(26) a. gīyícùɬ ⟵ γi_7-gi_6-s_1-yùɬ 'They are blowing it.'
b. ígícùɬ ⟵ i_7-gi_6-s_1-yùɬ 'They are blowing something.'

The object prefixes, *gu*$_7$- and *i*$_7$-, are mutually exclusive in (25) and (26) in that only one may occur in a given verb, whereas either may occur in a verb like the following:

(27) a. gúsgúɬ ⟵ gu_7-s_1-gúɬ 'He's hitting (e.g., a person).'
b. ísgúɬ ⟵ i_7-s_1-gúɬ 'He's hitting (e.g., an animal).'

(28) a. gúzìsxílà ⟵ gu_7-$z\grave{i}_5$-s_1-γí-là 'He killed a person.'
b. ízìsxílà ⟵ i_7-$z\grave{i}_5$-s_1-γí-là 'He killed something (an animal).'

As a locative object prefix, *gu*$_7$- appears in a small number of verbs such as 'to paint,' 'to plaster,' and others:

(29) a. tógùcīctcíj ⟵ $tó_{11}$#gu_7-si_3-s_2-tcíj 'I painted it (e.g., a house).'
b. tócīctcíj ⟵ $tó_{11}$#$Ø_7$-si_3-s_2-tcíj 'I painted it (e.g., a stick).'

(30) a. tógùsk'áz ⟵ $tó_{11}$#gu_7-si_3-s_1-k'áz 'He painted it (e.g., a floor) red.'
b. tósìsk'áz ⟵ $tó_{11}$#$Ø_7$-si_3-s_2-s_1-k'áz 'I painted it red.'

The element *gu*- has been identified as an unspecified subject, an unspecified human object, and as a "locative" object. The specification of grammatical and semantic properties of *gu*- is far from complete, however. More work is needed to analyze other cases of *gu*-, which occurs in such verbs as *gúgúnáhà*ʔ 'what they speak.'

8.30. PREFIXES IN NP AND PP.

Since the same set of pronominal prefixes is used in the postpositional constructions and noun phrases (with a few exceptions in kinship terms), only a few examples of PP are given here:

(31) *à*- 'like'

a. nàst'á	(ni-à-s-t'á)	'He's like you.'
b. sàst'á	(si-à-s-t'á)	'He's like me.'
c. gwàníst'ā	(gu-à-ni-s-t'á)	'You're like someone.'

(32) *γà*- 'from'

a. māγàtúsnìh	(mi-γà-tú-s-nìh)	'I wring out water from it.'
b. γāγàtúnìh	(γi-γà-tú-nìh)	'He wrings out water from it.'

(33) *tsʔ*ʔ 'to'

a. mītsʔì? yīdáàʔóh	(mi_j-tsʔì? γi_j-di-aad-ʔóh)	'We'll send him$_j$ to him$_i$.'
b. nītsʔì? dáàʔóh	(ni-tsʔì? di-aad-ʔóh)	'We'll send him to you.'

The sentence in (33a) is another example in which two third person objects are involved. Here *mi*$_7$- of the PP is the "indirect object" and *γi*$_7$- is the "direct object" where the subject is first person.

8.40. REFLEXIVE AND RECIPROCAL PREFIXES.

The reflexive and reciprocal prefixes are treated together here because there is essentially one form for each without varying for number or person.

8.41. Reflexive.

The basic form of the reflexive is *di*- which appears by itself as a possessive or with *i*- as an object; in the latter form, *i*- fills the object position (7). Consider the two sets of examples below:

(34) a. tɬ'úɬ àndìsdlóh 'He lost the rope.'
rope he-lost
b. dī-tɬ'úɬ-àʔ àndìsdlóh 'He lost his (own) rope.'
own-rope he-lost
c. yī-tɬ'úɬ-àʔ àndìsdlóh 'He lost the other's rope.'

(35) a. ī*dī*sīs?íst 'I kicked myself.'
b. ī*dī*sí?íst 'You kicked yourself.'
c. ī*dī*s?íst 'He kicked himself.'
d. ī*dī*sáà?íst 'We kicked ourselves.'
e. ī*dī*sās?íst 'You kicked yourselves.'
f. īgí*dī*s?íst 'They kicked themselves.'
g. īts'ī*dī*s?íst 'Someone kicked himself.'

The grammatical relationship marked by *di-* in the NP of (34) is comparable to that marked by *di-* in the VP of (35) in that the latter marks coreferentiality of the subject and object and the former that of the subject and the possessor of the object. In (34c), *yi-* (⟵ *γi-*) is parallel to γi_7- in a transitive verb.

Notice that *i-* and *di-* are separated by gi_6- and *ts'i-* in (35f–g). Bearing this in mind one can analyze the reflexive prefix into i_7- (obj.) and di_5- (thematic) instead of idi_7-. Since the reflexive prefix (object) is coreferential with the subject and the number distinction is made in the subject, it is not unexpected that no number distinction is made in the reflexive object prefix. As a nominal prefix, however, the reflexive *di-* is optionally affixed by gi_6- to mark plurality.

The last two forms in (35) certainly favour this analysis of the reflexive prefix. If *idi-* is considered a single morpheme, it is necessary to explain why it is "infixed" by a position 6 prefix (*ts'i* or *gi-*) as in (35f–g). A kind of metathesis rule would be required to account for these forms.

(36) a.	tɬítc'á	sìsxí	'He killed a dog.'
	dog	he-killed	
b.	dì-lítc'á	sìsxí	'He killed his (own) dog.'
	his_i-dog	he_i-killed	
c.	dì-lítc'á-ká	yíγó	'He killed his (own) dogs.'
	his_i-dog-s	he_i-killed	
d.	dì-gī-lítc'á-ká	gīyíγó	'They killed their (own) dogs.'
	$their_i$-dog-s	$they_i$-killed	

As shown by (36b-c), the number of the object noun, namely *tɬítc'á* (*-lítc'á*), is marked by *-ká,* whereas the number of the subject as well as the coreferential possessor in the object noun phrase is marked by *gi-*. Notice the stem suppletion, *-γín* (B) 'to kill (sg.)' in (36a-b) and *-γón* (B) 'to kill (pl.)' in (36c-d).

8.42. Reciprocal.

Regardless of person and number, the reciprocal object has only one form as illustrated by the following examples:

(37) a. *átɬī*zīsásyí 'Ye killed each other.'
cf. zìsīyí 'I killed him.'
b. *átɬī*gīyīsgùl 'They hit each other.'
cf. ìnīsgúɬ 'I'll hit someone.'
c. *átɬà*nāàt'á 'We are like each other.'
cf. sàyíst'à? 'He became like me.'

In the above examples, $atɬi_7$- occupies the same position as any other object prefix, and its relationship to the verb is transparent. Such a grammatical relationship, however, is not so transparent in the following examples wherein *atɬi-* appears in the incorporated PP:

(38) a.	átɬààdìnìsí?	(atɬi#$yà_{12}$-di_4-ni_3-s_2-zíd)	'I'll close it up (with sand).'
	cf. gwàdīsí?	(gu-$yà_{12}$#di_4-s_2-zíd)	I'll spread sand.'
b.	átɬààdìnìskò?	(atɬi-$yà_{12}$-di_4-ni_3-s_2-1_1-kò?)	'I'll close it (with rags).'
	cf. gwàdískō?	(gu-$yà_{12}$#di_4-s_2-1_1-kò?)	'I'll spread it (cloth).'
c.	átɬàànìstsús	(atɬi-$yà_{12}$#ni_3-s_2-s_1-tsús)	'I'll fold it (fabric).'
	cf. nāγànīstsús	(ni-$yà_{12}$#ni_3-s_2-s_1-tsús)	'I'll give it (fabric) to you.'

No superficial grammatical analysis is able to account for the relationship between the verb and the noun (or nouns), which is marked on the surface by the reciprocal prefix. Although it is not clear what the deep structures of the above would be like, (38c) and its related sentences provided some insight. It is apparent that a neuter theme related to the transitive/causative theme (38c) is:

(39) a. sīstsùz ⟵ si_3-s_1-tsùz 'It (fabric) is lying.'

It is now reasonable to assume that (38c) is a causative counterpart of the neuter (39); *atɬi-* of (37c) then refers to the two ends of a fabric. In other words, the semantic structure of (38c) is something like this: "I cause a fabric to lie with both ends being opposed to each other." Without a deeper

analysis like this, it is not possible to account for the "reciprocal" relationship marked on the surface by *atti-*.

A phonological variation of *atti-* is found in such forms as the following:

(40) a. *ás*níγà? 'each other's food'
b. *ás*ònīsāàdó 'We got married to each other.' (We sat down with each other.)

In (40a), *as-* is a possessive, and in (40b) it is an object of a PP, namely *as-ò*. To what extent *as-* alternates with *atti-* is not clear, but it is reasonable to assume that *s* of *as-* is a weakening of *tt* in *atti-*. The spirantization of *tt* to *s*, observed elsewhere in Sarcee phonology, is a well-known historical process in many other Athapaskan languages (see chapter 2 for more examples of this alternation).

8.43. Summary.

The reflexive and reciprocal prefixes are different from other pronominal prefixes in that they do not inflect. Table 5 shows all surface formal contrasts.

Reflexive		Reciprocal
sg	di	atti ~ as
pl	di-gi	

Table 5

8.50. *mi-* AND *ts'i-* IN LEXICAL DERIVATION.

For the grammatical and semantic contrast between subject prefixes such as $Ø_6$- vs. *ts'i*$_6$-or between object prefixes such as *mi*$_7$- and *i*$_7$-, I have introduced the notion [± specified]. I prefer this notation to the traditional term "deictic," which is used for the cognates of *ts'i*$_6$- in contradistinction to position 2 subject prefixes, or to a more recent term (see Young and Morgan 1972) "definite" vs. "indefinite."

I base my choice of "unspecified" for *ts'i*$_6$- (and *i*$_6$-) on the fact that *ts'i-* is different semantically and syntactically from the so-called indefinite pronouns of English and other better-described languages. As mentioned earlier, *ts'i*$_6$- is chosen instead of $Ø_6$ in contexts where the identity of the referent is irrelevant to or redundant in the context. This is contrary to the way

an indefinite pronoun is normally used in English and in other languages.

In another respect, *ts'i-* is a "designated" pronoun, since it has the specific syntactic function of referring to a person that is not "indefinite." It is interesting to note that an apparent cognate in some Northern Athapaskan languages is identified as 1pl subject prefix. It would be very difficult to explain the semantic shift if *ts'i-* were to be identified as an indefinite third person.

The data presented in this section suggest that more than a single binary term is required for an adequate description of the grammatical and syntactic oppositions that obtain in prefix categories. *mi*$_6$- and *ts'i*$_6$- respectively are the most productive object (or possessive) and subject prefixes used in lexical derivations (of new words). Consider the possessive prefixes below:

(41) a. í-ní 'thought'
b. sí-nì? 'my thought'
c. mí-nì? 'his/her thought'
d. gú-nì? 'somebody's thought'
*ts'í-nì?

The prefix in (41a), or its cognate, is generally known as an indefinite possessive prefix. According to table 3b, *i*$_7$- and *gu-* are both "unspecified" but contrast in terms of [± human]. *mi*$_7$- (and *si-*) on the other hand, contrast with both *i*$_7$- and *gu*$_7$- in terms of [± specified]. *ts'i*$_6$- does not occur as a nominal prefix. Of the third person prefixes, *mi*$_6$- is always chosen in lexical derivations exemplified by the following forms.

(42) a. máγààlùcí ← mi-γà-i-lùc-í 'elephant'
his-beak-it-hang-loose-N
b. mítca-gūlíní ← mi-tcà-gu-lín-í 'spoon'
his-tail-there-is-N
c. tcìz-mìst'ùdí ← tcìz mi-si-t'ùd-í 'duck pipe'
cf. ít'ùd 'He smokes.'
ísáàt'ùd 'We smoke.'

Particularly interesting is the last example above. *mi-* in (42c) is *mi*$_7$- (object) instead of a possessive prefix. If the subject of the underlying verb (*-t'ùd* 'to smoke') is $Ø_6$, the expected object must be *γi*$_7$. Either the general rule that obtains between the third person subject and object is violated in the above derivation, or the underlying verbal theme is impersonal (see [3]).

If *mi*$_7$- ("specified," "definite") is considered a general object (possessive)

prefix, a sort of "designated" pronominal, used in one type of lexical derivation, it is only natural to expect that the subject counterpart so designated be $\emptyset_7$ (which is also "specified" or "definite"). This is, however, not always so. While there are examples with $\emptyset_6$, *ts'i*$_6$- occurs more frequently in such a derivation:

(43) a.	nàyìníts'ìzīdī	(nà-γi-ni-ts'i-zíd-í)	'sadness'
	cf. nàyìnízíd	'He is sad'	
b.	táts'ìdìdlìí	(tá-ts'i-di-dlìh-í)	'prayer'
	cf. tádìdlìh	'He will pray'	
c.	íts'íyìnìí	(i-ts'i-γi-l-nìh-í)	'man's jealousy'
	cf. íyìnìh	'He is jealous'	

No conclusion can be drawn yet on the characteristics and subclassification of the third person pronominal prefixes. It is clear, however, that such terms as "deictic" and "indefinite" are either insufficient or misleading. *ts'i*$_6$- should not be termed "indefinite," although *i*$_7$- may be so termed. A distinction in terms of "specified" vs. "unspecified" is presented here only as a step towards a clarification of the problems involved.

9

Aspect Prefixes

9.00. INTRODUCTION.

As shown in chapter 5, many aspectual paradigms are distinguished by stem set alternation as well as conjugation markers (aspect prefixes). Some details of the alternating aspect prefixes are examined in this chapter with particular attention to the problems of morphemic identity, semantic interpretation, distribution, and phonological anomalies.

The existing Athapaskan literature deals mostly with the morphemic identity of the aspect-marking prefixes and their phonological behaviours, but little has been said until recently about their distribution or their semantic characteristics. As is reflected in the analysis of Ahtna by Kari (1979) and Navajo by Young and Morgan (1980), among others, the distribution of alternating sets of conjugation markers is governed primarily by the nature of derivational aspect. As is shown below, the semantic interpretation of the aspect prefixes is also constrained to a large degree by the nature of aspectual paradigm; that is, the same prefix may be semantically interpreted differently depending on the aspectual paradigm in which it occurs.

Of the four subcategories of the paradigmatic aspect (i.e., inflectional categories), only the imperfective and perfective have alternating conjugation markers while the progressive and iterative are either unmarked or marked by only one prefix. Of the alternating aspect prefixes, the three perfective prefixes, that is, the so-called s-perfective, y-perfective, and

n-perfective, are best known in the Athapaskan literature. The Sarcee cognates of these prefixes are *si*$_3$-, *γi*$_3$-, and *ni*$_3$- respectively. The identity of the imperfective prefix(es) is not so straightforward, however. Corresponding to the *ni*-perfective, there is the *ni*-imperfective, but the imperfectives that correspond to the *si*-perfective and *γi*-perfective are usually marked by no prefix except for some 1pl forms that are marked by *si*$_3$- or *γi*$_3$- in some paradigms.

Many Athapaskan languages have an optative prefix which occurs in position 3 (e.g., *wə-/u-* in Chipewyan or *o-* in Hupa), but Sarcee has no trace of either the prefix or the stem form.[1]

The prefix categories of the Sarcee verb recognize two positions: position 3 for the imperfective and perfective prefixes and position 4 primarily for the *di*-inceptive and *ni*-terminative. There are some difficulties, however, in identifying the elements that occur in position 4, as discussed in a later section.

9.10. IMPERFECTIVE AND PERFECTIVE PREFIXES IN ACTIVE VERBS.

Assuming that zero is an imperfective marker paired with *si*$_3$- and *γi*$_3$-, there are three sets of imperfective/perfective prefixes (conjugation markers) that are most commonly found in active verb paradigms:

Imp (A)	Perf (B)
ni-/Ø	ni-
Ø	si-
Ø	γi-

Peculiar phonological characteristics of these aspect prefixes include the deletion of the *ni*-imperfective, the deletion or reduction of the *si*-perfective (si ⟶ s or Ø), and the augmentation of the *γi*-perfective (γi ⟶ a), all of which apply only if the subject is in the third person. Some details of these rules are discussed in the last chapter.

Disregarding the imperfective for the moment, consider the three perfective prefixes in the following verbs, all of which are based on the stem *-yáh* (A)/*-yā* (B) 'to go, walk:'

(1) a.	nà*ní*yálà	'He arrived.'	(coming)
b.	nà*yí*yálà	'He arrived.'	(going)
	xà*yí*yā	'He has gone out.'	
	kú*yí*yálà	'He entered.'	

c. γákò*sī*yā	(γakò$_{12}$-. . .)	'He's gone for the doctor.'
tákò*sī*yálà	(tákò$_{12}$-. . .)	'He came out at the other side of the water.'
náà*cí*cō	(ná-a-si-s-yā)	'I got up.'
ì*cí*cō	(i-si-s-yā)	'I'm played out.'

The distribution of the three perfective prefixes is not so haphazard as it might appear, considering the types of themes in which they occur. The first two forms indicate that *ni-* and *γi-* may alternate freely in a given theme, but it cannot be determined to what extent this freedom of alternation may occur. Other forms based on the same stem show that *γi-* occurs predominantly in the theme which is modified by an adverbial prefix (e.g., *nà#*, *xà#*, and *kú#*). On the other hand, *si-* occurs in a theme in which there is an incorporated element, suggesting that *si-* occurs in a derived (secondary) theme. The examples in (1c) show an incorporated PP in the first two forms and a thematic element (*a* or *i*) in the last two forms.

Returning now to the imperfective prefixes, there are two imperfective prefixes *ni*$_3$- and Ø, which correspond to the *ni*-perfective. The examples cited in (27c), chapter 5, show the *Ø/ni-* pair which occurs in the forms whose stems constitute a triplet suppletive set marking numbers, that is, *-yáh* (sg), *-t'òs* (dl), and *-dàł* (pl) 'to go.' It appears, however, that this pair of conjugation markers is restricted in distribution, while the *ni-/ni-* pair occurs in a number of different themes, including the following:

(2)	A		B	
a.	tc'á*ní*sīd	'I'll wake up.'	tc'á*ní*síd	'I woke up.'
b.	nīná*ní*s?òh	'I'll bring it back.'	nīná*ní*s?ó	'I brought it back.'
c.	k'áá*ní*stsád	'I'll finish eating.'	k'áá*ní*stsàd	'I finished eating.'
d.	tc'á*ní*stàh	'I'll wake him up.'	tc'á*ní*stíh	'I woke him up.'
e.	sìnìsgúł	'He'll punch me.'	sì*ní*sgúl	'He's punched me.'

Although it cannot be determined what governs the selection between the *Ø/ni-* pair and the *ni-/ni-* pair, the mutually exclusive distribution of the three perfective prefixes, *ni-*, *si-*, and *γi-* in the momentaneous, semelfactive, and seriative paradigms respectively, is illustrated by the examples (29–31) in 5.53. This does not mean, of course, that the three perfective prefixes occur in those three paradigms only. For example, *si-* and *γi-* are paired to mark a neuter paradigm to be discussed shortly. Meantime, it should be noted here that *si-* occurs also in some imperfective forms of active paradigms.

In 5.54 are shown aspectual paradigms of the duration theme category, of

which all forms of the durative paradigm except one are marked by the *Ø/γi-* pair. The exception is the imperfective form of the 1pl subject, *īsáàtsīy* (i-si-aad-tsīy) 'we are crying,' in which the imperfective prefix is *si-* instead of zero. Consider the following two (partial) imperfective paradigms, one in the durative and the other in the momentaneous aspect, both of which are based on the same root:

(3)	Durative Imperfective		Momentaneous Imperfective	
a.	mísnō	'I'm eating it.'	īdīsnàh	'I'll swallow (food).'
b.	mínísnō	'Keep eating it!'	īdísnàh	'Swallow (food)!'
c.	yísnō	'He's eating it.'	īdīsnàh	'He'll swallow (food).'
d.	mĩsàànō	'We are eating it.'	īdáànàh	'We'll swallow (food).'
e.	másnō	'Ye are eating it.'	īdāsnàh	'Ye'll swallow (food).'

Compare the two (d) forms. Only in the durative paradigm does *s* (⟵ si_3-) appear. The anomalous *si-* always appears as *s-*, since the vowel is deleted by a well-motivated rule (see chapter 11), and the first vowel in (4) represents a thematized object prefix (i.e., i_7). In (5d), the second vowel is peg *i* which assimilates to the preceding vowel (see below). The anomalous occurrence of *si-* is observed not only in durative paradigms, but also in others, including the momentaneous and the seriative. In all cases, nonetheless, *s-* (⟵ *si-*) appears if the subject prefix is first person dual/plural, for example,

(4)	A		B	
a.	íst'ùd	'I'm smoking.'	ìyìst'úd	'I have smoked.'
b.	ít'ùd	'You....'	ìyít'úd	'You....'
c.	īt'ùd	'He....'	át'úd (i-γi-t'ud)	'He....'
d.	*ís*áàt'ùd	'We....'	īγāàt'úd	'We....'
e.	ást'ùd	'Ye....'	īγāst'úd	'Ye....'
f.	īgít'ùd	'They....'	īgát'úd	'They....'

(5)	A		B	
a.	nàsíd	'I'm standing.'	nàyīsīd	'I have stood.'
b.	nànīzíd	'You....'	nàyīzīd	'You....'
c.	nàts'īzíd	'Somebody....'	nàts'īyízīd	'Somebody....'
d.	nà*ás*āàzíd	'We....'	nàγāàzīd	'We....'
e.	nàsīd	'Ye....'	nàγāsīd	'Ye....'
f.	nàgízíd	'They....'	nàgīyízīd	'They....'

(6)	A		B	
a.	táàs?òh	'I'll put it down.'	tāsīs?óh	'I've put it down.'
b.	táná?òh	'You....'	tāsí?óh	'You....'
c.	táyī?òh	'He....'	tāyīs?óh	'He....' (si_3- ⟶ s)
d.	táts'ī?òh	'Somebody....'	tāts'īs?óh	'Somebody....' (si_3- ⟶ s)
e.	tá*ás*áà?òh	'We....'	tāsáà?óh	'We....'
f.	tāās?òh	'Ye....'	tāsā?óh	'Ye....'
g.	tágīγā?òh	'They....'	tágīyīs?óh	'They....' (si_3- ⟶ s)

(7)		
a.	tìcóh	'I'll get out of the way.' (cf. tìnà 'path')
b.	tìnīyáh	'You get out of the way!'
c.	tìyáh	'He'll get out of the way.'
d.	tì*ìs*āàyáh	'We'll get out of the way.'

Whether the perfective form is marked by γi_3- as in (4–5) or si_3- as in (6), the anomalous *si-* appears in the imperfective form. Why *si-* occurs in the imperfective form where the subject is 1pl in some paradigms cannot be explained, but the occurrence of the vowel *i* is consistent in that it is preceded by a disjunct prefix or no prefix; that is, no peg vowel occurs if the anomalous *si-* is preceded by a conjunct prefix, for example, *nádīsáà?òh* ($ná_{11}$#di_4-si_3-aad_2-?òh) 'we are going to take it.' In (4) the initial vowel is not a peg, but i_7- (thematic), which deletes before *a*. The disjunct prefixes that precede peg *i* in (5–6) are $ná_{11}$#, and $tá_{11}$#, and $tì_9$# in (7) is most likely an incorporated noun *tìnà* 'path.' At this point, it should also be noted that *aad-* never occurs in absolute initial position; it is preceded either by a conjunct prefix or *is-* (peg + *si-*). But the occurrence of the anomalous *si-* is not restricted in this way. It also occurs in an iterative paradigm, for example,

(8)		
a.	tānáyīc?ōtc	'I kept putting it on.'
b.	tānáγá?ōtc	'You....'
c.	tānáyī?ōtc	'He....'
d.	tānáts'ā?ōtc	'Someone....'
e.	tānáà*c*àà?òtc	'We....' (cf. sibilant assimilation.)
f.	tānāc?ōtc	'Ye....'
g.	tānágīγā?ōtc	'They....'

Furthermore, some imperfective paradigms are marked by *γi-* instead of *si-*, for example,

(9) a. nānīs?òh 'I'm going to put it on the ground.'
b. nànā?òh 'You....' ($nà_{11}$#ni_3-ni_2-$Ø_1$-?òh)
c. nàyì?òh 'He....' (ni_3- ⟶Ø)
d. nàts'ā?òh 'Somebody....' (ni_3- ⟶Ø)
e. nànāγàà?òh 'We....'
f. nànās?òh 'Ye....'
g. nàgíγà?òh 'They....'

In short, the apparent random occurrence of *si-* and *γi-* in the imperfective form with 1pl subject in active verbs cannot be adequately explained at this time. The apparent peg *i* suggests that the subject prefix (*aad*$_2$-) is a disjunct prefix where the vowel of the conjunct prefix is deleted (i.e., si ⟶ s/____a). But why does the anomalous *γi-* in (9) not require a peg vowel? (See 11.40 for an alternative analysis.).

9.20. IMPERFECTIVE AND PERFECTIVE PREFIXES IN NEUTER VERBS.

The neuter paradigm that belongs to the motion theme category is consistently marked by the *si-/γi-* pair (see 5.52), but the conjugation markers for other neuter verbs (i.e., descriptive or stative verbs) cannot be determined accurately at this time (see 5.56). It is, however, possible to make a few generalizations that have motivated the subcategorization of neuter verbs into theme categories. The morphological characteristics of the descriptive verbs include *di*$_5$- and *ni*$_3$- and the lack of inflection; that is, there is no imperfective aspect corresponding to the perfective aspect. On the other hand, the stative verbs are characterized by the *si*-perfective prefix and the lack of an imperfective form.

The thematized perfectives, both *ni-* and *si-*, are identified as position 3 prefixes although they are not conjugation markers. Particularly worth mentioning here is the phonological difference between the thematized *ni-*perfective (which is assumed to have derived from PA *ŋə-) and the perfective *ni-* of the conjugation markers *ni-/ni-*. It is the imperfective *ni-*, not the perfective *ni-*, that is deleted in the same way as the thematized *ni* perfective. These two homophonous perfective prefixes are mutually exclusive in that one occurs in neuter verbs and the other in active verbs; hence no two different prefix positions are necessary. See 11.40 for further comments.

9.30. INCEPTIVE AND TERMINATIVE.

The prefix *di-* is identified as *di*$_4$- (inceptive) in the following imperfective paradigm:

(10) a. *dí*stsàł (di_4-s_2-$Ø_1$-tsàł) 'I'll throw it (a stone).'
b. *dí*tsàł 'You....'
c. *ídí*stsàł 'I'll throw something.'
d. *ídí*tsàł 'He'll throw something.'
e. y*ídí*tsàł 'He'll throw it.'

The inceptive prefix also occurs in the following perfective paradigm which is marked by the *si*-perfective:

(11) a. dìcīsō 'I started off.' (di_4-si_3-s_2-$Ø_1$-yā)
b. dīsíyā 'You started off.'
c. dìyā 'He started off.' (si_3- ⟶Ø)
d. ts'ìdìyā 'Someone started off.' (si_3- ⟶Ø)

The inceptive prefix co-occurs with the *si*-perfective in the above paradigm (inceptive-perfective), and it also co-occurs with other aspect prefixes (to be shown shortly); but it is apparently mutually exclusive with the adverbial in some paradigms as shown below:

(12) a. dìcóh (di_4# ...) 'I'll go.'
b. nàcóh ($nà_{11}$# ...) 'I'll get off.'
c. xàcóh ($xà_{11}$# ...) 'I'll go out.'
d. kúcóh ($kú_{11}$# ...) 'I'll go in.'

But in other paradigms it co-occurs with the adverbial:

(13) a. $ná_{11}$#
nádīs'òh 'I'll pick it up.'
nádìsīs?ó 'I've picked it up.'
nádìsās?ó 'Ye have picked it up.'
náyìdā?ó 'He's picked it up.' (si_3- ⟶Ø)

b. xá$_{11}$#

xá*dī*s?òh	'I'll dislodge it.'
xá*dì*sìs?ó	'I've dislodged it.'
xáyī*dì*?òh	'He'll dislodge it.'
xáyì*dì*?ó	'He's dislodged it.' (si$_3$- ⟶ Ø)

The behaviour of di$_4$- is further complicated by the fact that it appears to be mutually exclusive with ni$_3$- (imperfective or perfective), for example,

(14) a. di$_4$-:

ì*dì*s?ás	'I'll kick something.' (i$_7$- ...)
ī*dī*sīs?àz	'I've kicked something.'
ì*dì*s?àz	'He's kicked something.' (si$_3$- ⟶ Ø)

b. ni$_3$-:

ì*nì*s?ás	'I'll kick him.'
ìdì*nī*s?ás	'I'll kick myself.' (idi- 'oneself')
sì*ná*?àz	'He's kicked me.'
sìgì*ná*?àz	'They've kicked me.'

Considering the fact that *di-* appears where the object is [−specified, −human], whereas *ni-* appears where the object is [+specified, +human], the functions of these prefixes may include the specification of gender as suggested in chapter 5. The nature of semantic complexity involved in the so-called aspect prefixes is revealed further by such forms as cited in (15). Compare *di-* and *ni-* in (a) and *ni-* and *γi-* in (b):

(15) a. ná*dì*sīsgí(n) 'I packed it home.' (said when away from home)
nìná*nì*sgí(n) 'I packed it home.' (said when at home)
b. nà*ní*yálà 'He arrived.' (coming)
nà*yí*yálà 'He arrived.' (going)

A kind of deictic contrast is clearly indicated in each pair above, but such semantic contrast is not always observed in other verbs in which these prefixes occur. The contrast, therefore, may very well be ancillary to the nature of the aspectual paradigm or theme category, but no conclusion can be drawn on the basis of the available data.

The two well-attested aspect prefixes in position 4 are the *di-*inceptive and *ni-*terminative. The latter, while homophonous with *ni$_3$-* is distinguishable from *ni$_3$-*, phonologically as well as morphologically. Like the *di-*inceptive, the *ni-*terminative occurs in all available paradigmatic forms (i.e., it is not deleted when the subject is in the third person). Notice *ni$_4$-* in the imperfective, perfective, and iterative paradigms:

(16) 'to lie down'

	Imperfective	Perfective	Iterative
a. 1sg	nīstàh	nīsístíh	nánīctátc
b. 2sg	nítàh	nísítíh	nánítātc
c. 3sg	nītàh	nīstíh (si$_3$- ⟶ s)	nánītátc

Phonologically, *ni$_4$-* is distinct from *ni$_3$-* (imperfective) in that the latter deletes if the subject is in the third person (see [9c–d]), but the former never deletes. Morphologically, *ni$_4$-* may co-occur with any position 3 morpheme, but *ni$_3$-* is mutually exclusive with it. Nevertheless, *ni$_4$-* can be easily confused with *ni$_3$-* where the position 3 morpheme is zero or *si-* is either deleted or reduced to *s* where the subject is in the third person (see [13–14]).

9.40. PROGRESSIVE (*γi$_3$-*), ITERATIVE (*ná$_{10}$#*) AND DISTRIBUTIVE (*dà$_8$#*).

Unlike the prefixes in the imperfective and perfective forms, there is only one prefix each for the progressive and iterative. Furthermore, the iterative is different from the other paradigmatic aspects, including the progressive, in that the prefix which marks the paradigm is a disjunct prefix rather than one of position 3; as well, it does not consistently appear in all iterative forms. Another different feature of the iterative form is that it may be marked by the *γi-* perfective and/or the *di-*inceptive. These morphological characteristics of the iterative suggest that iterative forms constitute an independent paradigm of thematic aspect that inflects for the imperfect and perfective marked by Ø and *γi$_3$-*. The examples below show that the progressive is consistently marked by *γi$_3$-*, but the iterative is either marked by *ná$_{10}$#* or not marked by any prefix, while the distributive is optionally marked in the imperfective, perfective, or progressive paradigm.

(17) Progressive:

a. γi$_3$-

náγàsyìs	(ná-γi-as-γìs) 'Ye are running.'
ī*yī*sáɬ	'I'm chasing (game).'
*yī*s?óɬ	'I'm holding it (while moving).'

b. di$_4$-γi$_3$- (inceptive progressive)

xā*dáà*ts'ìɬ	
(xà#di-γi-ts'ìɬ)	'(Sun) is coming up.'
*dī*yīsnìɬ	'I'm swallowing it.'
dì*dì*yísdjíɬ	'I'm getting old.'[2]
dàgídí*dì*yīs?òs	'They (animals) are getting played out.'

(18) Iterative:

a. unmarked

ástágūnàtc	'I'd like to talk.' cf. gūnāh 'He talks.'
gīmīsxátc	'I killed them now and then.'
ìdìcʔìc	'I keep kicking.' (di_4-)
ídíctcìɬtc	'I keep throwing it (a rock).' (di_4-)

b. marked (by $ná_{10}$#):

tānácʔótc	'I keep putting it up.'
tānáyīcʔótc	'I *kept* putting it up.' (yi_3-)
nádíctɬ'ātc	'I run every now and then.' (di_4-)
nádíyīctɬ'ātc	'I *ran* every now and then.' (di_4-yi_3)

(19) Distributive:

a. imperfective

nádìsgùy	'It is spilled.'
nádàdīsgùy	'It is spilled here and there.'
dízáy	'It is crumply.'
dàdízáy	'Each is crumply.'

b. perfective

yítɬ'ùw	'It is moldy.' cf. ítɬ'úw 'It will get moldy.'
dàyítɬ'ùw	'Each is moldy.'

c. progressive

ìγāsùɬ	'Ye are dragging some along.' cf. ìyīsùɬ 'I'm dragging something along.'
dàγāsùɬ	'Each of ye are dragging it along.' cf. yīsùɬ 'I'm dragging it.'

Although the distribution of the iterative prefix ($ná_{10}$#) cannot be precisely specified, it behaves like other optional adverbial elements in position 11 in some iterative as well as noniterative forms, for example,

(20)	xā*ná*yìstó	(perfective)	'I pulled it out again.'
	xā*ná*dísīstó	(inceptive-perfective)	'I started to pull it again.'
	*ná*gìmìsxátc	(iterative)	'I killed them again and again.' cf. (18a).

While the distribution of $ná_{10}$# and that of yi_3- in the iterative forms suggest (as mentioned above) that the iterative constitutes a thematic aspect rather than a subcategory of the paradigmatic aspect, the lack of stem variation for the imperfective and perfective distinction would make it the only

paradigm of the active theme category that does not involve stem variation for inflection. The behaviour of the iterative prefix is similar to that of the distributive prefix in that both are optional in distribution. Although the distributive prefix is recorded only in the three aspect paradigms exemplified above, its occurrence may not be so restrictive. Unlike the iterative form, however, there is no evidence that the distributive form is marked in the verb stem.

Returning now to the progressive, it should be reiterated that *γi-* is the only and obligatory aspect prefix for this paradigmatic aspect. According to Li's analysis, as reflected in his stem list (1930), many "continuative" (i.e., progressive) forms occur without *γi-*. Such forms are, however, not progressive (Li's continuative) forms, but imperfective forms with the Ø-imperfective prefix that belong to a seriative or durative paradigm, which is glossed as 'Be V-ing.'

9.50. POTENTIAL PREFIX (*γi-*).

Another aspect prefix that is homophonous with the *γi-*perfective is the *γi-*potential, which occurs in position 3, being mutually exclusive with other aspect prefixes. Unlike the other aspect prefixes, however, the potential prefix may co-occur with any paradigmatic form of the verb except perhaps the iterative. Because of this freedom of distribution and of the fact that it may co-occur with a modal proclitic or enclitic, the potential *γi-* may very well be treated as a modal prefix. Sapir labelled the *γi-* in the negative form as "prohibitive" in his unpublished grammar file. The examples in (21) show that the potential *γi-* occurs in all paradigmatic aspects, and those in (22) show that it occurs in verbs that are modified by a modal proclitic or enclitic (e.g., *dú, -ìgùɬ, -ìsà*):

(21) a.	ná*yí*stsìl	'You might get wet.' (-tsìl = A)
b.	dúù*yī*sʔíh	(dú i-γi-s-ʔíɳ) 'I'm blind, cannot see.' (-ʔíɳ = B)
c.	zīγāsγáɬ-ìgùɬ	'Don't kill him!' (-γáɬ = C)
d.	ì*yí*tcīdj-ìgùɬ	'Don't eat!' (-tcīdj = D; see 5.55)

(22) a.	dīyíyá-ágùɬ	'Don't go away.' cf. dīyáh 'he'll go'
b.	nāyísmòʔ-ìsà	'I might swim.'
c.	tāyístsò-òsà	'I might die.'

As observed in the two sets of data above, the *γi-*potential is not restricted

to any inflected form of the stem, and there is no other aspect prefix where the *γi*-potential occurs. It is obvious that the *γi*-potential is a position 3 prefix. This prefix also occurs *optionally* in what Li called "delayed future;" for example, *ísṭ'ùdī* 'I'll smoke later,' *yísdònī* 'I'll drink later.' In other words, the future form which is marked by suffix *-ī* may also be marked by the *γi*-potential prefix. As discussed in the next chapter, the future and the past forms (marked by suffix *-ì*) do not belong to the inflection proper.

9.60. OTHER PREFIXES IN THE PERFECTIVE AND PROGRESSIVE.

One other prefix that may occur immediately preceding the *γi*-perfective is *yi-*, as in the following:

(23) a.	màγáyíyīsʔàz	'I missed in kicking him.'	(-ʔàz = B)
b.	màγáyíyìsyìl	'I missed him in clubbing.'	(-yìl = B)
c.	màγáyíyíst'ùw	'I missed him in shooting.'	(-t'ùw = B)

Each of these forms have an incorporated PP (indirect object) and a perfective stem. The prefix *yi-* in the above forms is apparently a position 4 prefix. Functionally, it appears that what the *di*-inceptive is to the imperfective is what *yi-* is to the perfective, although the morphemic identity of this prefix is yet to be determined.

Another prefix that is not positively identified is *di-* which occurs in the progressive as in the following:

(24) a.	dàgídídìyīsʔòs	'They're getting played out.' (-ʔòs = C)
b.	dìdīyīcdjíɬ	'I'm getting old.' (-djíɬ = C)
c.	sīdīdásʔòɬ	(si-di-di-γi-s-ʔòɬ) 'He's beginning to command me.' (-ʔòɬ = C)
d.	dīnīγāāts'íɬ	(di-ni-γi-aad-ts'íɬ) 'We're just about to sit down.' (-ts'íɬ = C)
e.	ɬɬáádīdīnātáɬ	(ɬɬá#i-di-di-ni-γi-táɬ) 'He's just about to fall asleep.' (-táɬ = C)

The first three forms have *didi-* before the *γi*-progressive. It is apparent that the *di-* immediately preceding *γi-* is the *di*-inceptive in position 4, but what about the other *di-* ? The problem is more complicated in the latter two

forms in which the sequences of *dini-* and *didini-* occur in (d) and (e) respectively. If the *di-* of *dini-* is the *di*-inceptive, what is *ni-* ? One possible answer to this question is that it is the *ni*-terminative. It probably is also true for the *ni-* in (e). If so, the only conclusion that can be drawn for the data is that the *di*-inceptive and *ni*-terminative are not mutually exclusive in the progressive; furthermore, the *di*-inceptive may be reduplicated. If the *didi-* is a result of reduplication, the prefixes in (23), *yiyi-*, might be the reduplication of the *γi*-potential. In any case, the forms in (24) suggest that position 4 may be filled by more than one aspect prefix.

9.70. SEMANTIC INTERPRETATION OF ASPECT PREFIXES.

There are two questions to be raised with respect to the semantic properties of aspect prefixes in general. First, how many distinct morphemes are represented among the homophonous forms? For example, does the si_3- that occurs in the imperfective neuter theme represent the same morpheme that occurs in the perfective active theme? Do the so-called *γi*-perfective and *γi*-progressive really represent two different prefixes as assumed? Second, once the morphemic identity is firmly established, what are the semantic differences that are involved in different forms of the same aspect category? For example, what are the semantic differences involved in the three perfect prefixes, that is, si_3-, ni_3-, and $γi_3$- ?

It is apparent that the semantic interpretation of the aspect prefix is constrained by the aspectual thematic paradigm in which it occurs. For example, the *γi*-perfective prefix occurs in the neuter paradigm of a motion theme category (e.g., *yīkòʔ* 'a plate lay there' vs. *sīkóh* 'a plate lies there') as well as in a few active paradigms, such as the durative and seriative (e.g., *yīstsày* 'I was crying' and *míyīsgūl* 'I've been punching him'). The *γi*-perfective which occurs in the durative and seriative paradigms contrasts with the *si*-perfective, which occurs in the semelfactive paradigms (e.g., *sīsgúɬt* 'I punched him once'). The semantic contrast between the repeated or sustained action and the single segmented action marked by the *γi*-perfective and *si*-perfective respectively is best illustrated by *yīsγó* 'I killed them' and *zìsīsyí* 'I killed him.' This contrasting semantic feature, however it may be specified, is hardly relevant to the semantic interpretation of the *γi*-perfective in the neuter paradigm. In short, the semantic specification of aspect prefixes involves not only the inherent difference between different forms (e.g., *si*-perfective vs. *γi*-perfective) but also the contextual difference of the same form (e.g., *γi*-perfective in different aspectual paradigms).

In (24) are given progressive forms in which more than one position 4 aspect prefix occurs. It is obvious that semantic interpretation must be concerned not only with the meaning of individual morphemes, but also with the synthesis of separate morphemes. Another semantic feature peculiar to some progressive and iterative forms are indicated by the following examples:

(25) Progressive:

a.	*yīsgáɬ*	'I'm packing while walking.'
	táyīsgáɬ	'I'm packing (not moving).'
b.	*yīsʔóɬ*	'I'm holding it (while moving).'
	táyīsʔóɬ	'I'm holding it (not walking).'
c.	nágúdínásnòɬ	(ná-gu-di-ni-γi-s-nòɬ) 'He's eating on the run.'
	ísnōh	'He's eating.' (durative imperfective)

(26) Iterative:

a.	xāādí*yì*cwùc	'I whistle while going out.'	(xà$_{11}$# 'out')
	kūūdí*yī*cwùc	'I whistle while going in.'	(kú$_{11}$# 'in')
	īdí*yī*cwùc	'I whistle while moving along.'	
b.	náácʔìc (ná-i-s-ʔìc)	'I'm kicking while moving.'	
	ìdìcʔìc	'I keep kicking.'	
	ìdīyīcʔìc	'I kept kicking.'	

The semantic peculiarity involved in these data is reference to walking, since either the progressive or the iterative does not necessarily imply walking. Apparently, there is not a single morpheme that is responsible for that particular reference, but the interpretative rule that will give that particular reading is not obvious either.

It has already been observed that some aspect prefixes indicate a kind of deictic contrast (see 9.30), and the observation made above adds more problems than solutions.

10

Verb Stem Inflection

10.00. INTRODUCTION.

As in many other Athapaskan languages, Sarcee verb stem inflection appears extremely irregular and complicated. In the first and most important account of this phenomenon, Li (1930) is primarily concerned with sampling various types of phonological processes that are involved in the stem inflection. In a more recent work on this problem I (Cook 1972) proposed a few quite general phonological processes that account for most of the problems involved in the inflectional phonology. This work constitutes the basis of my second approach to one of the most difficult problems in Sarcee grammar.

It is necessary at the outset to clarify a distinction between the terms "root" and "stem." This distinction assumes that each concrete representation of a verb stem (i.e., a finite use of a stem) consists of a lexeme (i.e., root) plus an inflectional category, either aspect or mode, which is marked phonologically by a stem-suffix and/or ablaut, vocalic and/or tonal, as the case may be. This distinction, however, is an abstract one, since the root, which is comparable to an infinite form of other languages such as English, is neither used uninflected, nor is it phonologically independent of the inflectional categories involved. It is possible to represent the root in an abstract phonological form, but such a full-scale analysis has never been attempted for any Athapaskan language.

Complementing the discussion presented in chapter 5, in which stem set variations are discussed vis-à-vis thematic aspects (or aspectual paradigms), this chapter will concentrate on stem variations vis-à-vis paradigmatic aspects (or inflectional categories). From an historical point of view, the stem may be analyzed to a root and a stem suffix. Leer (1979) proposed several aspect-marking PA stem suffixes that are distinct from root-final consonants. In contemporary Sarcee, as in any other sister languages, the distinction between a root-final consonant and a stem suffix is anything but apparent on the phonetic surface, although an abstract analysis revealed some regularity of the underlying stem suffixes (see Cook 1972). Leer also discussed root vowel ablaut in terms of lengthening in the process of stem variation. While some ablauts still mark aspectual distinctions in Sarcee, the lengthening process, which presupposes a distinction between full vowels and reduced vowels, has become obfuscated because of the merger of these two qualities of vowels. A third phenomenon involved in the process of inflection is tonal ablaut, only part of which can be explained in terms of the low-marking glottal feature. The tonal ablaut is further complicated because of the unresolved status of the mid-tone.

Li's stem list recognizes up to four aspect categories and one tense; that is, "imperfective," "perfective," "continuative," "iterative," and "delayed future." As mentioned elsewhere in this book, "continuative" is called "progressive" for the sake of consistency with a better established Athapaskan terminology. As discussed in chapter 9 (as well as in chapter 5), the distinction between the imperfective and perfective is marked by one of the alternating pairs of conjugation markers, while the progressive is always marked by γi_3-. On the other hand, the iterative occurs with $\emptyset_3$ (imperfective) and γi_3- (perfective). For this reason, among others, the iterative may be considered to constitute an independent (thematic) aspectual paradigm that inflects for the imperfective and perfective. With this alternative in mind, however, the stem inflection is discussed in terms of the four aspects, including the iterative.

The future (along with the past) is not considered an inflectional category, however. Neither the future nor the past is apparently obligatory, since they are formed optionally on the basis of an aspect stem, and there is no inflectional prefix (i.e., conjugation marker) that co-occurs exclusively with either the future or past suffix.

There are two major questions to deal with in analyzing the verb stem inflection: (i) what governs the inflectional potential for each paradigm?, and (ii) what is the phonological process that marks each paradigmatic aspect? With respect to question (i), the data presented in chapter 5 indicate that a

subcategorization of verbs in terms of theme categories is most interesting. For example, the neuter verbs in general do not inflect or inflect only for the imperfective and perfective, whereas active verbs in general inflect fully. It is observed that a paradigm that inflects for the progressive (C) and/or iterative (D) also inflects for the imperfective (A) and perfective (B). For this and other reasons, the process is described by the primary inflection (A, B) and the secondary inflection (C, D). Of these two categories of inflection, the latter presupposes the former. Some phonological differences also distinguish these two categories of inflection.

With respect to question (ii) raised above, historical comparative analyses (see Leer 1979) suggest that each paradigmatic aspect is marked primarily by a stem suffix and secondarily by ablaut (lengthening). Kari's analysis of Ahtna (1979) reveals a great deal of regularity in inflectional phonology. An abstract analysis of the Sarcee verb stems (Cook 1972) revealed a certain amount of regularity, especially in stem-final consonants such as *t* (C) and *-tc* (D). Nevertheless, much of what once must have been transparently regular has become obscured by phonological changes, such as mergers of vocalic qualities, demise of nasal vowels, spirantization, and development of tone, to name only a few major ones. As is discussed in some detail below, some old regularity is recoverable through morphophonemic alternations; some old stem-final consonants (i.e., stem suffixes) still remain unaffected by ongoing phonological changes; and certain new phonological regularities have emerged in Sarcee.

10.10. AN HISTORICAL COMPARATIVE PERSPECTIVE.

Kari (1979) and Leer (1979) have made significant progress in the study of PA verb morphology and phonology. Since references are made to Kari's work on morphology in chapter 5, and comments on the PA phonemic inventory are made elsewhere (Cook 1981), this section will examine Leer's study of inflectional phonology vis-à-vis Sarcee data.

One of the most interesting aspects of Leer's study is his hypothesis on the canonical shapes of the PA momentaneous stem sets whose root is closed by an obstruent. For these stem sets, he postulates three types of Pre-Proto-Athapaskan (PPA) roots: (I) *CvX, (II) *CVX, and (III) *CV'X, where v is a reduced vowel, V a "nonconstricted" full vowel, V' a "constricted full vowel," and X an obstruent.[1] Each type is characterized by the vowel quality manifest in the perfective stem. Each of these three types of roots are further distinguished by the nature of final obstruents: X' (glottalized),

which affected the preceding vowel to be "constricted" in PA; and X̄ (non-glottalized), which did not have such an effect. Leer's reconstruction of the three types of stem sets and Sarcee cognates are presented in the table on the opposite page.

The PA forms in table 1 are from Leer (1979) and the Sarcee cognates are from Li's list, Sapir's original notes, and my own data. What Leer labelled as "future" and "customary" correspond to "progressive" and "iterative" in Sarcee. Leer considered the Sarcee cognates from Li's list, which did not include the progressive and iterative forms for (IIa). For (IIIa) Leer did not consider the Sarcee cognate presented in the above table because of the unexpected high tone in the imperfective form, but Sapir's original note does have a set of imperfective forms, the stem of which has the expected low tone (i.e., *-nìh*).

Krauss and Leer have convincingly documented that Athapaskan tone has developed from the postvocalic glottal stop or glottalized obstruents. The Sarcee cognates in (Ib) and (IIIa–b) have low tone, confirming that Sarcee has a low-marking system (see Krauss 1978). The low-marking tone system is not immediately apparent in the Sarcee forms in (Ia) and (IIa-b), however. The expected tone in (Ia) is high, since the rootfinal is X̄ instead of X′. According to Li's list, only the imperfective form has high tone in (Ia). The low-toned forms, according to Li's list for (Ia), constitute counterexamples to the hypothesis. Leer (1979) proposed that the unmarked Sarcee tone is high if the vowel before X̄ corresponds to a PA full vowel and *mid if the corresponding PA vowel is reduced.* Sapir's notes, as well as mine, do indeed have mid-toned forms as shown in (Ia). However, this hypothesis cannot be confirmed until more PA forms are available. Consider the following stems which have similar surface tone patterns:

(1)	A	B	C	D	Gloss
a.	-ʔóh	-ʔòy(g-)	. . .	-ʔòtc	'fool someone'
b.	-ts'áh	-ts'ày(γ-)	-ts'áh	-tc'ītc	'lick'
c.	-dóh	-dòj(dj-)	-dóɬ	-dōtc	'dance'

If these forms correspond to PPA type (Ia) as suggested by the surface tone pattern and root-final consonants, the unmarked high tone in the progressive forms constitute further counterexamples, since the expected tone is mid (according to the hypothesis) because the vowel in the progressive as well as iterative derives from a PPA reduced vowel. On the other hand, the tone in the iterative appears to support the hypothesis.

Consider the perfective forms, PA and Sarcee, in (IIb) in table 1. The

	PPA Type	Imperfective PA	Imperfective Sarcee	Perfective PA	Perfective Sarcee	Future/Prog PA	Future/Prog Sarcee	Cust/Iter PA	Cust/Iter Sarcee	Gloss
I (a)	CvX̄	t'aχ̣	t'óh	t'aq	{t'òy(g-) t'ōy	t'aχ̣ɬ	{t'òh t'ōh	t'aχ̣k̲	{t'òtc t'ōtc	fly
(b)	CvX′	neχ̣	nàh	neq'	nik'	neχ̣ɬ	niɬ/nìh	neχ̣k̲	nitc	swallow
II (a)	CVX̄	γat	γód	γat	γód	γaɬ	γáɬ	γak	γác	shake
(b)	CVX′	ʔac	ʔòs	ʔatc'	ʔóz(dz-)	ʔacɬ	ʔòs	ʔack̲	ʔòc	walk
III (a)	CV′X̄	niχ	{nìh ní}	nik	nij(dj-)	neχ̣ɬ	nìh	neχ̣k̲	nic	move
(b)	CV′X′	ʔaɬ	ʔòɬ	ʔaɬ'	ʔòl(tl'-)	ʔaɬɬ	ʔòɬ	ʔaɬk̲	ʔòɬtc	hand chew

Table 1
Root Types: PA vs. Sarcee

vowel of the PA form is not "constricted" and consequently the Sarcee tone is not low-marked. Although the root is closed by X′, the PA full vowel is not constricted, unlike the reduced vowel in a similar environment as shown in (Ib), and the full vowel is immediately followed by a glottal stop instead of a glottalized affricate as shown in (IIIb). Notice also that the stops and affricates in the perfective forms of PA are not spirantized; whereas they are spirantized in other paradigmatic forms, where *-ɬ* and *-tc* are stem suffixes of the progressive and iterative respectively. According to Leer, the spirantization is blocked by perfective suffix **ỹ* (**-n̥*; see footnote 19, chapter 5) which is also responsible for the voicing of the root-final fricative which results from spirantization. In Sarcee, the spirantization is not fully completed, as indicated by the morphophonemic alternation of an affricate and its homorganic fricative. PPA type (IIb) is well attested in Sarcee as exemplified by the following forms:

(2)	A	B	C	D	Gloss
a.	-dàɬ	-dál(tɬ'-)	-dìɬ	. . .	'to throw (pl obj.)'
b.	-dàɬ	-dál(tɬ'-)	-dìɬ	-dìɬtc	'to fly (pl subj.)'
c.	-tàs	-táz(dz-)	-tìs	-tìc	'to lie down'
d.	-t'òs	-t'óz(dz-)	-t'òs	. . .	'to walk (dl subj.)'

One unexplained aspect of the B forms shown above is the glottalization which is retained in the lateral affricate but lost in the other one. The apparent deglottalization is not regular in that the prevocalic appearance of *dz* and *ts'* cannot be predicted, at least on the synchronic level. It is interesting, however, to note root-final *ts'* alternating with *z* in the forms that correspond to PPA type (IIIb), another well-attested type in Sarcee:

(3)					
a.	-k'òs	-k'òz(ts'-)	-k'òs	-k'òc	'to file'
b.	-k'ìs	-k'ìz(ts'-)	. . .	-k'ìc	'to flip'
c.	-γòɬ	-γìl(tɬ'-)	-γòɬ	-γòɬtc	'to hit with a club'
d.	-gòɬ	-gòl(tɬ'-)	-gòɬ	-gòɬtc	'to stagger'
e.	-ts'ìɬ	-ts'ìl(tɬ'-)	. . .	-ts'ìɬtc	'to stumble'

The final *ts'* and *tɬ'* occur, albeit rarely, in absolute final position, attesting further the reality of PPA and PA X′. Another glottalized obstruent that occurs in final position is *k'-*, but neither *t'* nor *tc'* has been recorded in that position. Final *k* is also recorded from one person (e.g., *-djàyk* cf. *-djà*(*g-*) 'to do, happen'), and final *ts* and *tc* are not so rare. The stops and affricates in final position, therefore, contrast between the aspirated and glottalized while the contrast between the aspirated and plain becomes neutralized in favour of the aspirated, just as in many other sister languages. Aside from these rare aspirated and glottalized affricates, there are some consonant clusters that have survived in Sarcee (see next section).

Returning now to table 1, the paradigmatic tone pattern is quite regular from an historical point of view, especially where it is low-marked by the glottal feature, but there is no apparent synchronic rule that would predict the tone pattern. The loss of postvocalic glottal stop, spirantization, deglottalization and vocalic changes all have contributed to the obfuscation of the PA phonological processes in Sarcee, some of which are recoverable as discussed below.

10.20. PRIMARY INFLECTION.

The PA momentaneous stem sets presented along with Sarcee cognates in table 1 show phonological features that distinguish the imperfective and perfective (i.e., primary inflection in Sarcee) and the rest of the paradigmatic forms. First, the vowels of the PA future and customary stems are reduced regardless of the vowel quality of the imperfective and perfective stems. Second, there are overt stem suffixes for the future and customary (**-ɬ* and **-k̥*), but there are no apparent stem suffixes for the imperfective and perfective forms. Leer (1979; see also Krauss and Leer 1981) reasons that there was no stem suffix for the imperfective, but there was a perfective stem suffix in PPA, which is postulated as **-ỹ*. This perfective suffix is believed to have been lost in PA but not without imparting a phonological effect; that is, it blocked the spirantization of root-final affricates and subsequently retained the voicing feature in the resulting (i.e., spirantized) fricative. This process has resulted in the light-heavy syllable alternation in Sarcee and other languages (see Cook 1977), which is the most conspicuous reflection, in the primary inflection of Sarcee, of the PA contrast between zero and **-ỹ*.

Another PA stem suffix that still survives in the primary inflection of Sarcee is *-t*, a semelfactive perfective. Other phonological processes involved in the primary inflection includes vocalic and tonal ablaut, of which little can be said in the absence of any clear observable patterns.

10.21. Consonantal Ablaut.

The consonants involved in the light-heavy syllable alternation are the stem-final fricative pairs *s:z, c:j, ɬ:l, x:γ,* and the nasal *n̥:n,* of which the voiceless occurs in A and the voiced in B. This regular alternation is trans-

parent on the phonetic level in the sibilant and lateral pairs as exemplified in (4), but that of the other pairs is opaque as it is revealed only in an abstract analysis to be presented shortly.

(4)	A	B		
a.	-dús	-dúz	[dú˙z]	'to crawl'
b.	-γūc	-γùj	[γʷù˙j]	'to whistle'
c.	-ʔòɬ	-ʔòl	[ʔò˙l]	'to chew'

The vowel of B is longer than that of A; however, this length is attributable to the voicing of the following segment. Therefore, voicing of the final consonant is the only distinctive feature between A and B. This regularity is further obscured in the innovative speech (see chapter 1) due to the devoicing of the B-final sibilants. This change, in turn, has changed the status of the length, which is now functional in the innovative speech.

The stem-final velar fricative pair (*x*, γ) do not show up on the phonetic surface (except for a few archaic forms), since *x* is realized by *h* everywhere, while γ is realized by *w* after *u* and *y* elsewhere. Although *x* and γ occur elsewhere on the phonetic surface, *x* does not alternate morphophonemically with *h*, whereas γ does alternate with *w* and *y nonfunctionally* as a stem-initial consonant (see chapter 11) but never functionally as a stem-final consonant. In this sense, this analysis is abstract. However, all the evidence discussed in Cook (1972) and other synchronic processes involving γ (Cook 1978c) support the view that stems like the following, in fact, belong to the same inflectional class as those in (4):

(5)	A (with final *x*)	B (with final γ)	
a.	-t'àh	-t'īy	'to stretch'
b.	-k'áh	-k'ìy	'to fall (cloth)'
c.	-zìh	-zìy	'shoot (arrow)'
d.	-zūh	-zùw	'scrape off'

The analysis involving the underlying stem-final nasal pair (*n̨*, *n*) is even more abstract in the sense that the *n̨* never occurs anywhere on the phonetic surface nor does it alternate with *h* because the voiceless nasal of the A-final is realized by *n* before a vowel (hence neutralizing with the B-final) or by *h* elsewhere. However, all the evidence that is given in detail elsewhere (see Cook 1972), especially the fact that the A-final is realized by *n* before a vowel, supports this abstract analysis. The stems having the nasal final include the following:

(6)	A (with final *n̨*)		B (with final *n*)	
	_____#	_____V	Everywhere	
a.	-ʔíh	-ʔín-	-ʔìn	'to have'
b.	-γíh	-γín-	-γìn	'to sing'
c.	-díh	-dín-	-dìn	'to train'
d.	-dóh	-dón-	-dó(n-)[2]	'to drink'

The A-final *h* in the above stems, which derives from the underlying voiceless nasal, is different from an *h* which derives from another source (e.g., *x*).

10.22. B-final Affricates and Stops.

The alternation between *h* (in final position) and *n* (in prevocalic position) as shown in (6) is comparable to the alternation between a fricative and its homorganic affricate (or stop) as shown in (7).

(7)		A	B		
		Everywhere	_____#	_____V	
a.	*z:dz*	-γòs	-γòz	-γòdz-	'to gnaw'
b.	*z:ts'*	-k'òs	-k'òz	-k'òts'-	'to file'
c.	*j:dj*	*-dóh*[3]	-dòj	-dòdj-	'to dance'
d.	*l:tɬ'*	-γòɬ	-γòl	-γòtɬ'-	'to throw (animate being)'
e.	γ[y]:*g*	-móh	-mòy	-mòg-	'to go on the war path'
f.	γ[w]:*k'*	-dzùh	-dzùw	-dzùk'-	'to run to wake up'

There are two major problems presented by these alternating B-finals. First, not all B-final fricatives alternate with affricates or stops as shown in the examples in (8). Second, B-final γ that is realized by [y] or [w] alternates with a stop (*g* or *k'*), not with an affricate.

(8)	A	B	
a.	-t'ás	-t'àz/-t'àz-	'to howl (animals)'
b.	-náh	-náj/-náj-	'to talk'
c.	-γìɬ	-γìl/-γìl-	'to stumble'

In order to account for the morphophonemic alternations for the B-final consonants (7) and to distinguish the alternating finals (7) from those nonalternating ones (8), it is only natural to postulate stops and affricates for

the alternating finals and fricatives for the nonalternating finals. Since there is no velar affricate in the phonemic inventory, the underlying B-finals *g* (7e), *k'* (7f) can be treated like the affricates for the purpose of spirantization. The same treatment may be accorded to the underlying voiceless nasal (6), since it is [-continuant] and there is no nasal affricate in the phonemic inventory.

Distinct from those B-finals which alternate contextually (7) and those which do not alternate (8), there is a small class of stems whose B-finals freely alternate between a fricative and its homorganic affricate.

(9)	A	B	Gloss
a.	mòs	móz/móts'	'to fall'
b.	k'ìs	k'ìz/k'ìts'	'to jump'
c.	ʔás	ʔàz/ʔàts[4]	'to kick'

Assuming that the underlying B-finals are affricates, the alternation can be accounted for by an optional rather than obligatory rule of spirantization. Assuming further that the stem-finals correspond to the PPA root-final X', the old rule of spirantization has not completed its course in Sarcee. It should be mentioned at this point that the same rule applies to the iterative stem suffix. In Sapir's data, this suffix occurs in three phonologically conditioned allomorphs: *tc, c,* and *j*. In contemporary Sarcee, *tc* (not following *ɬ*) has spiranted to *c,* and *j* has devoiced to *c,* totally eliminating the allomorphy between *c* and *j* (see 10.32).

Needless to say, the above description does not account for all consonantal ablauts in the primary inflection. There are other forms of consonantal ablauts, including those in (10) which may be described by the light-heavy syllable alternation but not necessarily by homorganic pairs.

(10)	A	B	
a.	-dzáh	-dzàj/-dzàdj-	'to handle grain-like objects'
b.	-tsíh	-tsíj/-tsídj-	'to paint a person'
c.	-ts'òh	-ts'òj/ts'òdj-	'to embroider'

10.23. Semelfactive Perfective Suffix.

The two perfective stem suffixes that Leer postulated for PPA are *-ỹ and *-t. As discussed in the preceding subsections, *-ỹ is completely lost in Sarcee (although its voicing effect remains), but *-t survives in a good many perfective stems of Sarcee, apparently in semelfactive paradigms. This suffix remains following one of the three root-final consonants, namely *s, c,* and *ɬ:*

(11)	A	B(sem.)	B(nonsem.)	Gloss
a.	-dīs	-dīst		'to roll sinew'
	-tàs	-tàst		'to spot'
	-kús	-kúst		'to cough'
b.	-γòɬ	-γòɬt	-γìl	'to strike'
	-gúɬ	-gúɬt	-gúl	'to hit with a fist'
c.	-γùc	-γùct	-γùj	'to whistle with mouth'
	-ʔóc	ʔʔōct		'to sneeze'

The forms in (11b) are particularly interesting from an historical point of view. The root-final consonant is voiceless preceding *-t* and voiced otherwise (i.e., in the nonsemelfactive form), further confirming the existence of another perfective suffix (i.e., *-ỹ).

The semelfactive perfective suffix along with the preceding root-final consonants accounts for most of the final consonant clusters in Sarcee, the only other cluster being *ɬtc,* root-final *ɬ* and the iterative suffix. These limited final clusters suggest that either the semelfactive perfective suffix or the root-final consonant other than *s, c,* and *l* has been deleted, so that the morphemic status of the semelfactive perfective suffix has become obscured on the phonetic surface.

10.24. t-Final Stems.

Although *t* and *d* neutralize as *t* in final position, the root-final *t* is distinguished from the root-final *d* before a vocalic suffix and other phonological features discussed below.

There are three subcategories of stems whose underlying root-final consonant is *t*. This final *t* appears as *h* in A and *t* in B, as *h* in A and *h* or *t* in B, or as *h* or *t* in both A and B. The following are examples of these three subcategories of *t*-final stems. The *t* which alternates with *h* occurs before a vowel.

(12)		A	B	Future	
a.	*h:t*	-mòt	-mòt		'to burst'
		-tóh	-tót		'to test'
b.	*h:h* (*t-*)	-nìh	-nìh/-nìt-	-nìtī	'to know'
		-yòh	-yòh/-yòt-		'to find out'
c.	*h*(*t-*):*h*(*t-*)	-níh/-nít-	-níh/-nít-	-nítī	'to work'
		-lùh/-lùt-	-lùh/-lùt-	-lùtī	'to handle a rope'

As will be discussed in some detail, the future form is derivable by suffixing *-ī* to one of the underlying aspect stems. Therefore, the stem-final *t* before the vocalic suffix provides evidence that the final *h* derives from *t*. It appears reasonable to assume that a spirantization rule like the one discussed in 10.22 is operative in some *t*-final stems. A question, however, is why such a rule does not apply consistently. The data given in (12) are from Li's list. A comparison of these in Sapir's original notebook with my field data of recent years provides a clue as to the nature of the rule.

The paradigm in (13a) 'to taste' is from Li's list which is based on Sapir's notes. Upon a careful examination of Sapir's original notes, I have confirmed that the forms in (13a) are incorrect: the correct forms recorded by Sapir are those given in (13b). In (13c) are corresponding forms that I have recently recorded:

(13)	A	B	C	D	
a. Li	-lí·	-lí	-lìh	-lìtc }	
b. Sapir	-líh	-líh	-lìh	-lìtc }	'to taste'
c. Cook	-lít	-lít	-lìh		

The forms in (13b-c) suggest the optional nature (in a broad sense) of the spirantization rule that is apparent in Sapir's data. This is confirmed by another comparison given below:

(14)			
a. Li	-lìh/-lìt-	-lìh/-lìt- }	'to hire'
b. Cook	-lìt/-lìt-	-lìt/-lìt- }	

Comparing the above two sets of data, one might assume that the change is from *h* to *t* rather than the reverse. As indicated in an earlier chapter, the current speech form in some speakers contains a number of archaic features. Therefore, the forms in (13–14) simply suggest a diachronic process of spirantization, the irregularity of which may be attributable to dialect or idiolect differences. A similar phenomenon is observed in the *d*-final verbs which is the concern of the following section.

10.25. d-Final Stems.

The final *d* which becomes neutralized with final *t*, becomes ʔ unpredictably in some stems. This phenomenon is observed in Sapir's data only. Again, the underlying reality of the final consonant is revealed when it is

followed by a vocalic suffix. The optionality of the glottalization is particularly apparent in (15b) 'to dig,' in which *d* and ʔ alternate in the same environment, that is, in nonprevocalic position.

(15)	A	B	Future	
a.	-gùd	-gùd		'to cut into pieces'
b.	-gáʔ/-gád-	-gàʔ/-gád- }		'to dig'
	-gad	-gád }		
c.	-gāʔ/-gād-	-gūd		'to poke'
	-zíʔ/zíd-	-zíd		'to become'
d.	-gúʔ/-gúd-	-gūʔ/-gūd-	-gūdī	'to stab'
	-tsí-/-tsíd-	-tsīʔ/-tsīd-	-tsídī	'to charge'

Like the case of the spirantization of the final *t*, the glottalization of the final *d* is a diachronic process which is absent from the speech I have recorded. To cite just one example, compare the verb stem 'to eat' in Li's list with that I have recently recorded:

(16)	A	B	
a. Li	-tsáʔ/-tsád-	-tsàʔ/-tsàd- }	'to eat'
b. Cook	-tsád/-tsád-	-tsàd/-tsàd- }	

In the paradigm I recorded the stem-final is *d* in both final and prevocalic positions, whereas in Li's list ʔ and *d* alternate depending on the context. The case exemplified in (16) is exactly parallel to that in (14). Despite this process of glottalization, the *d*-final stems remain distinct from the ʔ-final stems, for example,

(17)	A	B	Future	
a.	-ʔòʔ	-ʔòʔ	-ʔòʔī	'to command'
b.	-nòʔ	-nòʔ		'to be possessed of'
c.	-nìʔ	-nìʔ		'to make known'

The fact that in the above forms the final ʔ does not have an alternating *d* and that the stem-final of the future form is ʔ (as well as the marked low tone) suggests that the underlying final consonant is ʔ. However, the final glottal stop is rarely heard in contemporary Sarcee.

It should have been obvious that both the *t*-final stems and the *d*-final stems do not reveal any regular phonological process for the primary inflection. In many of these stems both A and B forms are identical, in many

others A and B have different tones, and a small number of stems involve vocalic ablaut, while A and B have an identical final consonant in all of these stems; although different final consonants are shown on the phonetic level in some stems due to certain phonological processes (e.g., glottalization, aspiration) which are irrelevant to the inflectional process.

10.26. n-Final Stems.

The *n*-final stems are like those stop-final stems discussed in the above two sections in that both A and B are identical in phonological representations except in a few in which tonal ablaut is involved. As well, some of these A and B forms have zero-final on the phonetic level because of a rule which is irrelevant to the inflectional process. The *n*-final stems deserve special comments because they can be confused (i) with the other nasal-final stems which involve consonantal ablaut (*n̲* for A and *n* for B) and (ii) with the zero-final (i.e., no final consonant) stems because of the deletion of final *n* under a certain condition. The following are a few examples of *n*-final stems; notice that the final *n* in some forms is deleted if no vowel follows:

(18)

a.	-ts'ó/-ts'ón	-ts'ó/-ts'ón-	'to be heard (a sound)'
b.	-tó/-tón-	-tòn	'to be long'
c.	-yá/-yán	-yàn	'to be wise'
d.	-tcú/-tcún-	-tcùn	'to be forbidden'

The stem-final *n* is deleted from word-final position if the following two phonetic conditions are met: (i) the preceding vowel is other than *i* and (ii) the tone on the syllable is high. If neither one of these conditions is met, the *n* does not delete, as shown in the three B forms above as well as the following examples:

(19)	a.	-tín (A)	'to freeze'
	b.	-tìn (B)	'to show'
	c.	-xín	'song'

Again, this *n*-deletion rule has no direct bearing upon the phonological process of inflection, and in fact there is no regular phonological alternation which marks the two aspect forms in (18).

10.27. Summary.

The primary inflection is characterized by consonantal ablauts where tonal and vocalic ablauts appear to play no major role at least in the momentaneous and semelfactive paradigms. Diachronic processes have certainly obscured the regularity that existed in PA, part of which is recoverable in an abstract analysis. Much of the apparent irregularity may be accounted for if and when the nature of thematic aspects is fully understood. Some of the innovative phonological rules, such as *n*-deletion and glottalization of final *d*, have further obliterated the paradigmatic regularity. Some details of these nonfunctional phonological rules are discussed to determine the underlying phonological representations of A and B forms. As shown in the next section, these underlying forms play an important role in characterizing the phonological processes involved in the secondary inflection.

10.30. SECONDARY INFLECTION.

The forms in the secondary inflection, namely the progressive (C) and iterative (D) are derivable by and large from the underlying A forms. The process involved here is basically suffixing with *-ɬ* and *-tc* for C and D respectively. These suffixes, however, do not always surface on the phonetic level because of several rules discussed in this section.

10.31. Progressive.

The C-final consonants that show up on the phonetic surface are *ɬ, s, c,* and *h*. It should be pointed out here that many of the so-called "continuative" (i.e., progressive) forms in Li's list are imperfective forms of the seriative or durative paradigm; for example, *-gúɬ* 'to punch' (seriative imperfective), and, *-tsīy* 'to cry' (durative imperfective).[5]

The underlying progressive stem suffix (which corresponds to PA **-ɬ*) is realized as *ɬ* in most cases but deleted after a certain category of root-final consonants, including sibilants (see below). Since the root-final consonants are mostly retained in the primary inflection (A and B forms), the allomorphic variation of the progressive stem suffix is predictable with reference to the A-final or B-final consonants if a certain degree of abstract representation is allowed (see Cook 1972).

The regular morphophonemic behaviour of *-ɬ* with respect to the root-

final is illustrated by the following examples. After the root vowel, *-ɬ* is intact (20),[6] and after the root-final (= A-final) sibilants *ɬ* deletes (21), and the root-final *ɬ, d,* and *n* delete before *-ɬ* (22):

(20)	A	B	C	
a.	-dò	-dó	-dóɬ	'to sit'
b.	-nó	-nò(ʔ)	-nòɬ	'to eat'
c.	-ló	-lò(ʔ)	-lóɬ	'to handle (pl obj.)'

(21)	A	B	C	
a.	-dús	-dúz	-dús	'to crawl'
b.	-ɣás	-ɣìz	-ɣīs	'to run'
c.	-ɣūc	-ɣùj	-ɣùc	'to whistle'

(22)	A	B	C	
a.	-ʔòɬ	-ʔòɬ	-ʔòɬ	'to butcher'
	-ɣùɬ	-ɣùɬ	-ɣùɬ	'to scrape'
b.	-gád	-gàd	-gùɬ	'to walk (one animal)'
	-zíd	-zíd	-zíɬ	'to become enough'
c.	-tùn	-tùn	-tùɬ	'to be broken into pieces'
	-dùn	-dùn	-dùɬ	'to get a swelling'

The correspondences between the A/B-final and the C-final in these three sets of examples are transparent and the allomorphs *ɬ, s* and *c* are easily accountable. The allomorphic variation of the progressive suffix is not always predictable, however. The *h* allomorph occurs, in general, where the A-final is also *h* as exemplified by the following forms:

(23)	A	B	C	
a.	-t'óh	-t'òy	-t'òh	'to fly'
b.	-dzàh	-dzáy	-dzàh	'to put gum on'
c.	-ts'áh	-ts'ày	-ts'áh	'to lick'
d.	-dlùh	-dlúw	-dlùh	'to laugh'
e.	-gùh	-gùy	-gùh	'to slide'

In an abstract analysis, as discussed in 10.21, the A and B finals are representable as *x* and *ɣ* respectively, which happen to reflect historical change. This means that the progressive suffix has been deleted after a root-final velar consonant. What renders irregularity to the synchronic analysis is that *h* occurs where *ɬ* is expected or vice versa. Consider the following:

(24)	A	B	C	
a.	-t'í(n-)	-t'ìn	-t'ìh	'to do, act'
b.	-gàh	-gín(n-)	-gáɬ	'to travel with a pack'
c.	-ʔìh(n-)	-ʔí(n-)	-ʔìh	'to steal'
d.	-ʔìh(n-)	-ʔí(n-)	-ʔìh/ɬ	'to see'
e.	-nàh	-nìk'	-nìh/ɬ	'to swallow'
f.	-dóh	-dòj(dj-)	-dóɬ	'to dance'

With the root-final *n,* (24a) is comparable to (22c) but the C-final is *h* instead of expected *ɬ*. As for (24b), it is safe to assume that the prevocalic A-final is *n* (i.e., *-gàn*), although such a form has not been recorded. With this alternating form included, (24b-d) have the same root-final: *n̨* for A and *n* for B. For this class of stems, there are two alternating C-finals: *h* as in (24c), *ɬ* as in (24b), or either as in (24d). This apparent "confusion" must be explained by the fact that different underlying root-finals are merged in surface A-finals as *h*. In other words, the A-final *x* of (23) and the A-final *n̨* of (24b-d) are neutralized as *h,* so that the two subclasses of stems are not distinguishable on the surface. On the other hand, the A-final *n* of (22c) and the A-final *n̨* of (24b-d) become neutralized as *n* in prevocalic position; hence the distinction becomes obliterated.

The irregularities observed in (24a), (24e), and (24f) are more difficult to explain. (24e) really belongs to (23) with the underlying A-final *x*. The A-final zero of (24a) in absolute final position is apparently interpreted as *h*. In fact, final *h* is frequently deleted, which is also indicated in Sapir's transcriptions. (24f) can be explained only if the A-final *h* is distinguished from the A-final *h* of (23) and (24); that is, if this *h* does not derive from *n̨* or *x*. Let us assume that the A-final of (24f) is underlying *h* to distinguish it from the *h* that derives from *n̨* or *x*. Allowing such abstract A-final consonants as *n̨* and *x,* the following two rules informally account for the allomorphy of the progressive form which derives from the A form plus *ɬ*:

Rule (1) Underlying A-final C-suffix C-final

a. $\begin{bmatrix} s \\ c \\ x \end{bmatrix}$ + ɬ ⟶ $\begin{bmatrix} s \\ c \\ x \end{bmatrix}$ (⟶ h)

b. $\begin{Bmatrix} \emptyset \\ ɬ \\ d \\ h \\ n̨ \end{Bmatrix}$ + ɬ ⟶ ɬ

These rules describe the synchronic alternations that reflect historical developments and the irregularities shown in (24), although not accountable by these rules, are not totally unexpected in light of the phonetic changes that have caused neutralization of some root-final consonants.

10.32. Iterative.

The iterative stem ends in *tc, ɬtc, c,* or *j* on the phonetic level.[7] As in the case of C-finals, these D-finals may very well be considered phonologically conditioned alternations where the underlying D form is represented by A plus suffix *-tc*. That the iterative aspect is represented by suffix *-tc* is indicated by the following stems whose A-final is zero or *t:*

(25)	A	B	D	
a.	-nó	-nò(ʔ)	-nòtc	'to help'
	-ʔó	-ʔò(ʔ)	-ʔòtc	'to command'
b.	-dàɬ	-dál	-dìɬtc	'to tell a lie'
	-γùl	-γùl	-γùɬtc	'to scrape'

The D-final *c* appears most regularly in stems whose A-final is a sibilant (*s, z, c*) or *y* (⟵ γ).

(26)	A	B	D	
a.	-ʔòs	-ʔóz	-ʔòc	'to walk (several animals)'
	-t'ás	-t'àz	-t'īc	'to howl'
b.	-γūc	-γūc	-γùc	'to whistle'
c.	-díz	-dīz	-dīc	'to twist'
d.	-tòy	-tòy	-tòc	'to count'
	-kùy	-kùy	-kùc	'to vomit'

There are a large number of stems which have A-final *s* and D-final *c*. On the other hand, stems with A-final *c, z,* or *y* and D-final *c* are extremely rare. In fact, those in (26) may very well be an exhaustive list of attested forms.

The D-final *j* appears most regularly in the stems which have A-final *d:*

(27)	A	B	D	
a.	-gád	-gàd	-gùj	'to dive'
b.	-tɬ'ìd	-tɬ'íd	-tɬ'ìj	'to break wind'
c.	-dlòd	-dlód	-dlùj	'to scratch'

In (25–27) are given three subclasses of stems in which the D-finals *tc, c,* and *j* occur. The D-final *tc* is not restricted to the stems whose A-final is either zero or *ɬ,* but it also appears in the paradigm whose A-final is other than those in (26) and (27):

(28)	A	B	D	
a.	-nòh	-nóh	-nōtc	'to move, stir'
b.	-níh(t-)	-níh(t-)	-nītc	'to work'
c.	-dóh	-dòj(dj-)	-dōtc	'to dance'
d.	-ʔih(n-)	-ʔíh(n-)	-ʔītc	'to steal'
e.	-tùn	-tùn	-tùtc	'to be broken into pieces'

It should be noted that all the above forms except the last have A-final *h,* but each of the final *h*'s has a different source except, perhaps, the first two. I am not sure if the *h* of (28a) comes from underlying *h* or *t* (recall the rule of spirantization and see [28b]). In (28b), *h* comes from *t,* the *h* of (28c) perhaps from *c,* and the *h* of (28d) derives from *n̥*. It is not clear whether these underlying distinctions are necessary for the derivation of D-finals. In any case, the forms in (28) constitute a class which is distinct from other subclasses, that is, (25–27). With these subclasses distinguished on the basis of the A-finals, one can assume that the iterative forms derive much the same way as do the progressive forms; that is, the primary means of inflection is affixing, not consonantal ablaut, as it may seem on the phonetic surface, and *-tc* is the underlying form representing the iterative aspect. The four root classes for the purpose of deriving the D-finals are those with zero or *t* final ($C_{(t)}$), with sibilant final (C_s), including *y* (⟵ γ),[8] with *d* final (C_d), and all others (C_x). The following sums up how these A-final consonants and suffix *-tc* surface as D-finals:

Rule (2)	A-finals		D-suffix	D-finals	Examples
a.	$C_{(t)}$			(t) tc	25
b.	C_s			c	26
c.	C_d	+	tc ⟶	j	27
d.	C_x			tc	28

The case of Rule (2a) is self-explanatory in that suffix *-tc* is added to the A-form and no further process is involved. The case of (Rule 2b) requires some explanation. Two major processes involved here are, in the order named, a palatalization rule, which I call C-Palatalization (Cook 1978c),

and a cluster reduction rule. In the cluster of C_s + *tc*, the sibilant assimilates to the following palatal affricate if the sibilant is not already palatal. This process converts *s* to *c* and *z* to *j* (and perhaps γ to *y*). What accompanies this palatal assimilation is the voice assimilation by which *j* (⟵ z) and *y* (⟵ γ) are devoiced to *c*.[9] After this assimilatory process, the second of the CC cluster is dropped, just as in the derivation of the progressive forms involving A-final sibilants.

There is no plausible explanation for the case of Rule (2c) where the cluster *d* + *tc* yields *j*. I consider this rule as a simple description of what happens. In the case of Rule (2d), the cluster is reduced to C_2 dropping C_1 ($=C_x$), which may be any consonant other than C_t, C_s, and C_d. It is not clear whether the consonants of C_x should be specified by the underlying A-final or surface A-final. It does not seem to matter as long as the attested cases are concerned, because none of the consonants in C_x, underlying or superficial, intersect with any other final consonant.

It has been observed, however, that each of the above four classes has one or a few exceptions which require further comment. Consider the following data:

(29)

	A	B	D	Expected Final	
a.	-nì	-ni	-nìc(tc-)	tc	'to call (animals)'
	-γò	-γōh	-γòc	tc(?)	'to tie'
b.	-zós	-zòz(dz-)	-jītc	c	'to frighten'
	-mòs	-móz/-móts'	-mòtc	c(?)	'to fall, roll'
c.	-gád	-gàd	-gùtc	j	'to dig'
d.	-níh	-nìj(dj-)	-nìc	tc	'to do with hand'
	-t'íh(n-)	-t'ìn	-t'ìc	tc	'to act'
	-zìh	-zìy	-jīc[10]	tc	'to shoot arrows'
	-ʔìn	-ʔìn	-ʔīc	tc	'to look for'

Before discussing the above apparent counterexamples, it should be pointed out that the data on the iterative presented above are from Sapir's material. As mentioned in chapter 1, two phonetic changes have affected the allomorphy of the iterative stems. One is the devoicing of the final sibilants, by which *j* (see [27]) has become *c*. The other is the spirantization of final affricates, by which *tc* has become *c* if not preceded by *ł*. In other words, the allomorphy of the D-suffix is reduced to *tc* and *c* in absolute final position. In view of these on-going phonetic changes, the occurrence of *c* instead of *tc* in (29) does not constitute any counterexample. The only

true counterexamples are those in (29b-c), where *tc* appears instead of *c* in spite of the phonetic change.

The first of (29a) shows the alternation between c (finally) and *tc* (before a vowel). Further examples are:

(30)

a.	dānì tc'ī*nìtc*áʔà	'What are they calling you?'
b.	nāmídì*cnìc*	'I keep calling it (animal).'
c.	ītc'*ínìc*lā	'They called him (several times).'

As stated earlier the final *tc* has become spirantized in final position in the innovative speech. This alternation of *c* to *tc* is exactly parallel to that of other spirant-affricate pairs as B-finals (see 10.22). Then, the above data (30) from Sapir's notes indicate that a spirantization rule operated not only on B-final affricates but also on some D-final affricates half a century ago. Recall that spirantization is a very general rule which also operates elsewhere in the grammar. I have first discussed this rule deriving numeral terms (Cook 1971d) such as *díícdīī* 'forty' from underlying *díítc'* + *dīī*. In short, while there remain a few exceptions, the morphophonemic alternations of the iterative suffix are regular, and there are only two allomorphs *-tc* and *-c* in contemporary Sarcee.

10.40. TENSE SUFFIXES.

Li recognized the fifth inflectional category called "delayed future," the derivation of which "is perfectly regular by the addition of the middle-toned suffix *-ī* to the imperfective or the continuative stem" (1930:15). He also mentioned, however, that some delayed future forms derive from perfective stems, especially where the primary inflection involves vocalic ablaut. This latter statement suggests that the derivation of the fifth category is not regular at all. Furthermore, there is no morphological evidence that indicates that *-ī* is a paradigmatic suffix like *-ł* and *-tc*. The data discussed in this section suggest that *-ī* (future) and *-ì* (past) constitute optional tense suffixes which may be affixed to any form of the paradigmatic stem, although the former predominantly occurs in the imperfective and the latter in the perfective forms.

10.41. Future.

The derivation of future forms are not regular at all morphologically or

phonologically. The only regular aspect of the future form is that the suffix is always in the same shape, that is, *ī* or *ū*, the latter being assimilated to the root-final *w*. While the stem to which the future suffix is affixed is predominantly the imperfective form, the perfective and progressive forms are also found in the future forms. *-γùcī* 'to whistle,' *-tcídjī* 'to eat,' and *-gàcī* 'to pack' are the only future forms attested to have derived from the iterative stem. The root vowels and stem-final consonants show the derivational relationship between the future form and the respective aspect stem.

(31) Imperfective vs. Future

	A	B	Future	
a.	-ʔás	-ʔàz(dz-)	-ʔásī	'to look'
b.	-γùc	-γùj	-γùcī	'to whistle'
c.	-dàɬ	-dál(tɬ'-)	-dàɬī	'to go (pl subj.)'
d.	-dūw	-dūw	-dūwū	'to make a hollow sound'
e.	-t'àh	-t'īy	-t'àhī	'to stretch'
f.	-gád	-gàd	-gádī	'to dig'

(32) Perfective vs. Future

	A	B	Future	
a.	-ʔó	-ʔò(ʔ)	-ʔòʔī	'to command'
b.	-ní	-nì(ʔ)	-nìʔī	'to say'
c.	-nó	-nò(ʔ)	-nòʔī	'to help'
d.	-djòh	-djò(ʔ)	-djòʔī	'to get well'
e.	-t'íh(n-)	-t'ìn	-t'ìnī	'to act'

(33) Progressive vs. Future

	A	C	Future	
a.	-ló	-lóɬ	-lóɬī	'to handle (pl obj.)'
b.	-tɬ'ùh	-tɬ'úɬ	-tɬ'úɬī	'to tie a rope'
c.	-tàh	-táɬ	-táɬī	'to handle a living being'
d.	-ʔòh	-ʔóɬ	-ʔóɬī	'to handle a round heavy object'
e.	-ʔúɬ	-ʔùɬ	-ʔùɬī	'to bathe'
f.	-kàh	-káɬ	-káɬī	'to go by boat'

An obvious question to be raised here is what determines the choice of respective aspect stems. There is no strong evidence that the future suffix may be optionally affixed to any particular stem form. On the other hand, it is impossible at this time to determine what constrains the choice of the appropriate stem form in the derivation of the future forms. Furthermore,

there are a few future forms whose stems are phonologically aberrant. Consider the following forms:

(34)

	A	B	Future	
a.	-záh	-zó(n-)	-zònī	'to chase'
b.	-t'úh	-t'ùw	-t'ùhī	'to shoot'
c.	-náh	-nó	-nòʔī	'to move camp'
d.	-nòh	-nóh	-nóɬdī	'to move, stir'
e.	-ní	-nít	-níɬdī	'to crow'

If the future form of (a) has the B stem, why is the tone different? Similarly, if the future form of (b) has the A stem, again why is the tone different? In (c) the vowel indicates the future form has the B stem, and the low tone may be due to the epenthetic stop. The (d) and (e) appear to have the C stem, but no progressive stem is attested for these verbs. Even if they have the C stem, the presence of *d* following *ɬ* cannot be explained.

Sapir's material includes a note concerning the future form which contains *d* (apparently a semelfactive perfective suffix):

(35) a. ídìyīc*γūcī* 'I'll whistle later on.' (future)
b. ídìyīc*γūcdī* 'I'll whistle later on, will have whistled.' (future perfective)

If (35b) indeed has the perfective stem, the above forms constitute one of the rare examples for the distribution of the future suffix, both in the imperfective and perfective stems.

The prefix *yi-* in (35) probably represents *γi*-potential. The morphemic identity of this prefix raises another question regarding the morphological status of the future form. This prefix is present in some future forms and absent in others regardless of the paradigmatic stem form, for example,

(36) a. ínís*ʔòɬī* 'I'll steal it later.' (stem = C)
b. nìkà*yìs*ʔ*óɬī* 'I'll lower it down later.' (stem = C)
c. nánic*djòʔī* 'I'll get well later.' (stem = B)
d. túù*yīsgádī* 'I'll dive later.' (stem = A)
e. mìhtìdìyīs*nòʔī* 'I'll help him later.' (stem = B)
f. ídís*kóhī* 'I'll play the hoop game later.' (stem = A)

The prefix *yi-* does not occur consistently in the future forms nor is there any other aspect prefix that appears in the future forms. This apparently in-

consistent distribution of *yi-* and absence of other aspect prefixes make it difficult to determine the exact status of the future forms.

10.42. Past.

The past suffix is mutually exclusive with the future suffix. Like the latter, it is suffixed to any form of the paradigmatic stems, although it is affixed most frequently to the perfective stem. The following examples show the distribution of the past suffix with respect to various stem forms:

(37)	A	B	C	D	Future	Past	
a.	-náh	-nī(g-)	-	-nīc	-náhī	-náhì	'to take hold of'
b.	-kàh	-kín	-káɬ	-kátc	-káɬī	-kínì	'to go to trade'
c.	-t'òs	-t'óz(dz-)	-tós	-	-	-t'ódzì	'to walk (dl)'
d.	-móh	-míy	{-móɬ / -míɬ}	-mōtc	-	-móɬì	'to swim'

In (a) the past derives from A, in (b-c) from B, and in (d) from C, but there is no example that derives from D, which may be accidental.

Like the future suffix, the past suffix may be affixed to any paradigmatic form of the verb as exemplified by the forms in (37). There is, however, an interesting difference between the future and past forms. While the former is frequently marked by prefix *yi-*, which is the only position 3 prefix that may occur in the future form, the latter retains the conjugation marker which is appropriate for the paradigmatic form of the verb, for example,

(38)			
a. zero imperfective:	nís*gúdì*t'ā	'I did indeed stab you.' (-gúd = A)
b. γi-perfective:	níyís*gúdlì*	'I've been hitting you.' (-gúdl = B)
c. si-perfective:	ídìcīcγ*ūcì*	'I did whistle.' (γùc = B)
d. γi-progressive:	dígá nádīnás*táɬì* (dígá ná-di-ni-γi-s-táɬ-ì)	'He was just about turning around.' (-táɬ = C)

From these and other examples, it is clear that the phonological and morphological characteristics of the past suffix are straightforward. It clearly does not belong to the stem inflection proper; *-ì* is an optional tense suffix which may be affixed to any paradigmatic form of the active verb.

10.50. SUMMARY.

The paradigmatic forms of the verb stem are described in terms of the primary inflection and secondary inflection. The former distinguishes the imperfective and perfective aspects marked by consonantal ablauts, and the latter distinguishes the progressive and iterative aspects marked by consonantal stem suffixes, *-ɬ* and *-tc* respectively. The future and past categories are optionally marked by vocalic suffixes *-ī* and *-ì* respectively. These forms are not considered to be paradigmatic forms of the verb. Vocalic and tonal ablauts (see 10.60) do not play major roles in the inflectional phonology of verb stems. Aside from the "organic" processes of consonantal ablauts and suffixing, there are several "inorganic" processes which have obscured the regularity of the organic (i.e., function) processes. The following semiformal presentation of the rules sum up salient features related to the phonological processes of stem inflection:

Rule (3)

a. C-Palatalization: $\overset{C}{\begin{bmatrix}+\text{cor}\\+\text{str}\\-\text{high}\end{bmatrix}} \longrightarrow [+\text{high}] \;/\; \underline{\quad} \begin{bmatrix}+\text{cor}\\+\text{str}\\+\text{high}\end{bmatrix}$

(See Rule [4], chapter 11.)

b. Cluster Reduction: $C_1C_2 \longrightarrow C_1$; $C_1C_2 \longrightarrow C_2$

c. Gliding:[11] $\gamma \longrightarrow \overset{V}{\begin{bmatrix}-\text{cons}\\ \alpha\ \text{back}\end{bmatrix}} / [\alpha\ \text{back}] \longrightarrow$

d. Breathing: $\begin{Bmatrix}x\\ \underset{\circ}{n}\end{Bmatrix} \longrightarrow h/\underline{\quad}\#$

e. $\underset{\circ}{n}$-Voicing: $\underset{\circ}{n} \longrightarrow [+\text{voice}] / \underline{\quad}V$

f. n-Deletion: $n \longrightarrow \emptyset / \acute{V}\underline{\quad}\#$ where $V \neq i$

g. Spirantization: $\overset{C}{\begin{bmatrix}-\text{cont}\\+\text{stri}\end{bmatrix}} \longrightarrow [+\text{cont}] / \underline{\quad}\begin{Bmatrix}C\\\#\end{Bmatrix}$

h. Backing: $i \longrightarrow u / \begin{bmatrix}+\text{back}\\+\text{high}\end{bmatrix} \underline{\quad}$

No significant ordering relationships obtain among these rules except between C-Palatalization and Cluster Reduction. The following sample derivations illustrate how some of the rules work.

Derivation

(1) 'to lick'

A	B	C	D	Rules
ts'áx	ts'àɣ	ts'áx + ɬ	ts'áx + tc	Input
-	-	ts'áx	ts'átc	Cluster Reduction
ts'áh	-	ts'áh	-	Breathing
-	ts'àɣ	-	-	Gliding
ts'áh	ts'àɣ	ts'áh	ts'ītc	Others

(2) 'to tie a rope'

tɬ'ùn̨	tɬ'ún	tɬ'ùn̨ + ɬ	tɬ'ùn̨ + tc	Input
-	-	tɬ'ùɬ	tl'ùtc	Cluster Reduction
tɬ'ùh	-	-	-	Breathing
-	tɬ'ú	-	-	n-Deletion
tɬ'ùh	tɬ'ú	tɬ'úɬ	tɬ'ūtc	Others

(3) 'to lie down'

tàs	táz	tàs + ɬ	tàs + tc	Input
-	-	-	tàc + tc	C-Palatalization
-	-	tàs	tàc	Cluster Reduction
tàs	táz	tìs	tìc	Others

In the first two sample derivations, the rules may apply in any order, whereas in the last derivation the first two rules must apply in that order; otherwise no correct D-form will be derived.

The derivations also involve vocalic and tonal alternations. Since some of these processes are not directly relevant to the points illustrated by the derivations, I have assumed they are explained by "other" rules in the above sample derivations. This, however, does not mean that vocalic and ablaut rules necessarily follow the rules affecting stem-final consonants. Quite the contrary is the case, as shown in the second sample derivation wherein n-Deletion is constrained not only by the vowel quality but also the tonal level of the preceding vowel. Very little has been said on these matters so far, and the following section briefly examines these problems.

10.60. VOCALIC AND TONAL ABLAUTS.

Although vocalic or tonal ablaut alone is involved in the primary inflection of some stems, such cases are very rare and no regular pattern has been observed. In a given paradigm, all forms may have the same vowel (i.e., no vocalic ablaut) or two vowels may alternate. It is extremely rare to find three vowels in a paradigm; in fact only two or three such paradigms are noted. There is no paradigm in which four vowels alternate. The tonal ablaut is even more irregular in that all the stem forms in a given paradigm may contain only one tone, two tones, or all three different tones.

10.61. Vowel Quality and Ablaut.

As is the case of final consonants, the vowel of the A form may be considered (somewhat arbitrarily) underlying or basic in that the quality of the vowel in one or more other forms of the paradigm is often predictable with reference to the basic vowel. If the basic vowel is high, *u* or *i* ("reduced vowel," Li 1930), it is unlikely that an ablaut will be involved in the inflection. Indeed, if the basic vowel is *u*, all other forms in a paradigm have without exception the same vowel, as shown here:

(39)

	A	B	C	D	
a.	-ʔūɬ	-ʔúl	-ʔùl	-ʔùɬtc	'to bathe'
b.	-dús	-dúz	-dús	-dūc	'to crawl'
c.	-ɣùɬ	-ɣùɬ	-ɣùɬ	-ɣùɬtc	'to scrape'
d.	-gùh	-gùy	-gùh	-gùtc	'to slide'
e.	-tsús	-tsùz	-tsús	-tcūc	'to handle a fabric'
f.	-tɬ'ùh	-tɬ'ú(n-)	-tɬ'úɬ	-tɬ'ūtc	'to tie a rope'

If the basic vowel is *i*, there is no ablaut in general, as shown in (40), but (41) shows eight exceptions:

(40)

	A	B	C	D	
a.	-díz	-dīz	-dís	-dīc	'to twist'
b.	-níh(t-)	-níh(t-)	-níh	-nītc	'to work'
c.	-zíʔ(d-)	-zīʔ(d-)	-zíɬ	-jīj	'to become'
d.	-ts'ìɬ	-ts'ìl		-tc'ìɬtc	'to shut one's eye'
e.	-ʔih	-ʔíh(n-)	-ʔiɬ	-ʔītc	'to see'

(41)

	A	B	C	D	
a.	-tìh	-tó(n-)	-tīɬ		'to handle a long object'
b.	-níh	-nó(n-)	-nīɬ		'to flow'
c.	-tsìh	-tsòn			'to defecate'
d.	-tsìn	-tsàn		-tcìtc	'to evacuate'

e.	-ts'ìh	-ts'á(n-)	-ts'īɬ		'to speak'
f.	-ts'íh	-ts'ó(n-)		-tc'ítc	'to hear'
g.	-tɬ'ís	-tɬ'ōs	-tɬ'ìc		'to fall (a long object)'
h.	-djìh	-djāy		-djìtc	'to breathe'

Notice that the ablaut vowel is *o* in all but the last stem and that the B-final is *n* in all but the last two.

The stems with basic vowel *o* are like those with basic vowel *i* in that there is no ablaut vowel as shown in (42) except for the eleven listed in (43):

(42)	A	B	C	D	
a.	-ʔó	-ʔò?	-òɬ	-ʔòtc	'to command'
b.	-ʔòs	-ʔóz	-ʔōs	-ʔòc	'to walk (several animals)'
c.	-ʔòɬ	-ʔòl	-ʔòɬ	-ʔòtc	'to butcher'
d.	-dò	-dó	-dóɬ	-dōtc	'to sit'
e.	-dóh	-dòj	-dóɬ	-dōtc	'to dance'
f.	-t'óh	-t'òy	-t'òh	-t'òtc	'to fly'

(43)	A	B	C	D	
a.	-γòɬ	-yīl[12]	-γòɬ	-γòɬtc	'to hit with a club'
b.	-mōh	-mīh(n-)		-mòtc	'to pick berries'
c.	-móh	-míh	-móɬ	-mōtc	'to swim'
d.	-nò?	-nò?		-nìtc	'to be possessed of'
e.	-zós	-zòz	-zòz	-jītc	'to frighten'
f.	-ts'ó(n-)	-ts'ó(n-)	-ts'íɬ	-ts'ītc	'noise to come'
g.	-tsós	-tsōs		-tcīc	'to stretch'
h.	-djó(n-)	-djó(n-)	-djíɬ		'to get old'
i.	-ló?(d-)	-lò?(d-)	-lìɬ	-lìj	'to float up something'
j.	-dlò?(d-)	-dló?(d-)		-dlùj	'to scratch'
k.	-tɬód(d-)	-tɬōh(t-)	-tɬíɬ	-tɬìj	'to run'

Among the eleven stems, the basic vowel is *o* and the ablaut vowel is *i* in all stems except one, (43j), which has *u* in D.

If the basic vowel is *a,* it is more likely that at least one form of the paradigm has an ablaut vowel. Indeed, it is not easy to find examples of a typically active paradigm in which all the forms have the basic vowel. The ablaut vowel is most commonly *i,* very rarely *o,* or in extremely rare circumstances *u*. The following are examples of stems whose basic vowel is *a:*

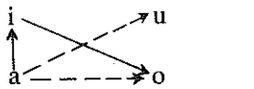
(44)	A	B	C	D	
a.	-ʔás	-ʔàz			'to look'

	-yá	-yā	-yáɬ	-yátc	'to go (one person)'
b.	-tàs	-táz	-tìs	-tìc	'to lie down'
	-tsàɬ	-tsíl	-tsàɬ	-tsìɬtc	'to throw a stone'
c.	-náh	-nó	-náɬ	-nátc	'to move camp'
	-zá(n-)	-zó(n-)	-záɬ	-jātc	'to chase'
d.	-gád	-gàd	-gūɬ	-gùtc	'to dig'
	-gád	-gàd		gùj	'to dive'

As indicated by these examples, stems with basic *a* are most complicated, not only because one has to distinguish those which do not have an ablaut vowel from those which do, but also because one has to specify each with a correct ablaut vowel.

Nevertheless, an interesting observation can be made as to the relationship between the basic vowel and the ablaut vowel. The following sums up what has been discussed on vocalic ablaut:

BASIC	ABLAUT
u	-
i	o (a)
o	i (u)
a	i (o, u)



Solid line = common
Broken line = rare

A last point to be noted is that the C and D forms usually have an ablaut vowel, most likely *i* (rather than *u*), reflecting the reduced PA vowel.

10.62. Tonal ablaut.

Tonal alternations are extremely irregular and very little synchronic generalization can be made at this time. The only predictable tone in stems is the tone of the future and past suffixes, which are invariably M and L respectively. The most common alternation is between H and L in the primary inflection. Light and heavy syllable alternation usually accompany this tonal alternation as illustrated by the following examples:

(45)	A	B	
a.	-ʔás	-ʔàz	'to look'
b.	-gás	-gàz	'to bite'
c.	-níɬ	-nìl	'to throw several small objects'
d.	-ʔóh	-ʔòy	'to fool'

A less common type of alternation is L (for A) vs. H (for B), and very rarely

H vs. M, M vs. H, and L vs. M. To study the tonal ablaut of Sarcee stem inflection, two questions must be answered: (i) to what extent is the stem tone altered by intonation and other morphophonemic phenomena, and (ii) what is the phonemic status of mid tone? Comparative data such as those given in table 1 would certainly be of help in resolving these questions. Unfortunately, I am unable to follow up these questions in this study.

11

Stem Initial and Prefix Phonology

11.00. INTRODUCTION.

The phonological rules discussed in the preceding chapter fall into two categories: (i) functional rules that account for the inflectional processes and (ii) nonfunctional rules that have nothing to do with the inflectional process per se, but happen to obscure, on the phonetic surface, the otherwise quite regular inflectional processes. This chapter deals with the latter type of rules, concentrating on the features that are of most importance in describing Sarcee phonology and of most interest from a theoretical point of view. For this reason the organization of this chapter differs considerably from the typical traditional account of an Athapaskan phonology (e.g., Li 1946, Hoijer 1946), which focuses mainly on enumerating those rules that govern inflection and those that govern morphophonemic alternations of prefixes without studying the relationships the rules have with one another.

Although the major issues regarding rule ordering are far from resolved, I shall assume that rules are ordered, at least in part, in linear fashion. This by no means compels me to organize all the phonological rules presented in this chapter into one sequential order. A more realistic approach to the problem would be to present the rules in several ordered sets as long as the data clearly support the ordering within each set.

Another way of organizing the rules would be to classify them according to certain common properties; for example, rules that are automatic and always apply under certain phonetic conditions, rules that are non-automatic and constrained by certain grammatical features, a class of morphemes that are subject to irregular alternations, rules that are constrained by different kinds of boundaries, and so on. While no attempt at a taxonomy of rules is made here, the sections in this chapter are intended to show the interaction of rules that account for major phonological alternations.

11.10. VERB-STEM INITIALS.

The verb-stem initial consonants postulated by Sapir and Li are the following: (i) nasals *m, n;* (ii) alveolar stops *d, t, t';* (iii) velar stops *g, k, k';* (iv) alveolar affricates *dz, ts, ts';* (v) alveopalatal affricates *dj, tc, tc';* (vi) lateral affricates *dl, tɬ, tɬ';* (vii) voiced fricatives *z, j,* γ, *y;* (viii) lateral *l,* and glottal stop ʔ. Li's list also includes a few stems with initial *c* which he assumes historically *t* (classifier) or *s* (1sg) plus initial *y* or γ (see below).

One of the problems to be dealt with in this chapter is this historical process that remains a synchronic rule of Sarcee grammar. Neither Sapir nor Li has presented explicit synchronic arguments for the voiced stem-initial fricatives. It seems equally reasonable, perhaps more so (see Hofer 1974) to argue that the stem-initial fricatives are voiceless. It will be shown, however, that stem-initial fricatives are voiced underlyingly, which happens to be historically true (Krauss 1976). Other rules to be discussed in this section involve s-Palatalization, C-Palatalization and d-Effect which, among others, involve stem-initial consonants.

11.11. Voiceless vs. Voiced Fricative and Lateral.

On the phonetic surface fricative and lateral stem-initials show alternation between the voiceless and the voiced as exemplified by the following data:

(1)	a. *s* vs. *z*	sìní*zí*	'He called me.'
		ìnī*sí*	'I called him.'
	b. *x* vs. γ	nādís*xòs*	'I shave it.'
		nādí*γòs*	'You shave it.'
	c. *ɬ* vs. *l*	tsìsì*l*ìh	'He'll hire me.'
		tsìsà*ɬ*ìh	'Ye will hire me.'

From the data given below, it is obvious that the alternation between the voiceless and the voiced stem-initial cannot be determined by what appears on the phonetic surface; that is, the rule governing this alternation is opaque. Therefore, a question to be answered with respect to the above data is what causes this opacity. A second question is which of the voiced and voiceless is the underlying stem-initial.

Assuming that underlying stem-initial consonants of the examples given in (1) are voiced, consider the following analysis:

(2)	a. si-	ni Ø-	Ø-zí	⟶ sìnízí 'He called me.'
	obj	perf subj	C stem	
	i-	ni- s-	Ø- zí	⟶ ìnīsí 'I called him'
	b. nà#	di- s-	Ø- γàs	⟶ nādísxòs 'I shave it.'
	adv	incep subj	C stem	
	nà#	di- ni-	Ø- γàs	⟶ nādíγòs 'You shave it.'
	c. tsì#	si- Ø-	Ø- Ø- lìh	⟶ tsìsìlìh 'He will hire me.'
	theme	obj imp subj	C stem	
	tsì#	si- Ø-	as- Ø- lìh	⟶ tsìsàɬìh 'Ye will hire me.'

It is apparent that the underlying stem-initial (e.g., γ) is devoiced (γ ⟶ x) following a voiceless segment (e.g., *s*), whereas it remains voiced following a voiced segment (e.g., *i*). This devoicing rule accounts for the alternation of *s* and *z* in (2a), *x* and γ in (2b), and *ɬ* and *l* in (2c). As shown in the second examples of (2a) and (2c), the *s* which immediately precedes the stem consonant is deleted. This deletion rule applies after the devoicing rule (Rule [1]). The underlying voiceless segment which causes devoicing before deletion renders the surface opacity of the stem-initial fricative or lateral.

Rule (1): Stem-Initial Devoicing.

$$\begin{bmatrix} C \\ +\text{cont} \\ +\text{voic} \end{bmatrix} \longrightarrow [-\text{voic}] \,/\, \begin{bmatrix} -\text{voic} \\ +\text{cont} \end{bmatrix} + \_\_$$

It seems that not every voiceless segment devoices the stem-initial continuant. The *d* [−voic, −cont] of *aad-* (1pl) does not devoice the initial continuant. In fact, *s* seems to be the only segment which causes this devoicing process. However, the segment in Rule (1) is specified as [−voic, +cont] to leave the rule as general as possible at this point.

The nature of the rule which deletes *s* before a stem-initial consonant is not yet clear, and since there are initial consonants other than *ɬ* that are involved in this rule, details are discussed below with more data.

Returning now to the alternation of the voiceless and voiced stem-initials,

one would argue for a voicing rule instead of a devoicing rule where the voiceless counterparts are assumed to be underlying. As far as the data given above are concerned, this alternative solution is as good as the other one.

Hofer (1974) has brought forward additional data from nouns to strengthen the argument for what he calls the "Spirant Voicing Rule." As shown in (3), the noun stem is voiceless if no segment precedes it, whereas it is voiced if preceded by a voiced segment:

(3)	a. xín	'song'	sìɣánà/síyínà	'my song'
	b. cìh	'food'	síjìhà	'my food'
	c. xáh	'grease'	sìɣáhà	'my grease'

Hofer (1974:15) argues that a voicing rule is simpler than a devoicing rule because the latter has to state that the voiced stem-initial devoices after a voiceless segment (as in verbs and possessed nouns) or initially, that is, after [−segment] (as in unpossessed nouns); whereas the former states that the voiceless stem-initial voices after a voiced segment.

The data from nouns, however, do not provide decisive evidence for a voicing rule, since not all unpossessed noun initial fricatives are unvoiced, nor are all possessed stem-initial fricatives voiced:

(4)	a. zòs	'snow'		
	b. sízàzàʔ	'my child'		
	c. xáɬ	'club'	sìxáɬàʔ	'my club'
	d. nìsúw	'your grandmother'		

A crucial counter-example to a voicing rule is (4d), in which the stem-initial *s* is not voiced despite the preceding vowel. Contrary to the argument for a voicing rule with data from nouns as in (3), the data in (4) support a devoicing rule similar to Rule (1).

Another important point is that the voice assimilation applies only to a stem-initial continuant. Therefore, *s* of prefix *si-* never becomes voiced following a voiced segment (e.g., *nī-sī-s-yíl* 'I am out of my mind'). This fact does not affect a devoicing rule, since the rule is irrelevant to any voiceless segment, but it does affect a voicing rule because the rule has to be blocked from applying to a voiceless segment in a prefix. This of course means that, all things equal, a voicing rule is more complex than a devoicing rule.

The noun examples in (4) suggest that underlying noun stem-initial fricatives are either voiced or voiceless. On the other hand, underlying verb

stem-initial fricatives are all voiced, which may become voiceless due to a devoicing rule similar to Rule (1). Further evidence for this conclusion is presented in the discussion of ɣ-initial verbs. This synchronic fact of Sarcee is consistent with historical-comparative facts observed by Krauss (1976).

11.12. s-Palatalization.

As mentioned at the outset, Li's verb-stem list includes several stems with initial *c*, which is the only voiceless fricative occurring as a stem-initial. Li suggested, however, that initial *c* developed (historically) from the contraction of *ɬ* (classifier) and intial *y*.[2]

This contraction, which Li assumed a diachronic process, is a synchronic rule of Sarcee grammar. Since I discussed this rule, which elsewhere I call s-Palatalization (Cook 1978c), no attempt is made to motivate this rule, but salient aspects of it are presented here.

By such palatalization, stem-initial *y* and the immediately preceding *s* contract, yielding *c*. As shown below, s-Palatalization does not apply if *y* is a derived segment (e.g., from ɣ) or the classifer *-l* (which deletes between consonants) intervenes underlying between *s* and *y* (i.e., s - l - y). For further reference I shall formulate s-Palatalization as follows:

Rule (2): s-Palatalization $s + y \longrightarrow c$

The segment *s* which contracts with *y* may be the *s*-classifier as in (5a) or 1sg subj. as in (5b):

(5)	a. mi- ni- s- yùɬ	⟶ mínìcùɬ	'You are blowing it.'
	obj subj C stem		
	b. di- si- Ø- yá	⟶ dìcá	'I will start off.'
	asp subj C stem		
	c. mi- s- s- yùɬ	⟶ mícùɬ	'I am blowing it.'
	obj subj C stem		

In (5c) either the *s*-classifier or the subject prefix is deleted by a rule which appears to have no strict ordering relationship with s-Palatalization. It is not clear at this point whether an *s* deletes and then the remaining *s* and stem-initial *y* contract, or the classifier *s* and stem-initial *y* contract and then the subject *s* deletes before a fricative (i.e., *c*). The second example in (2c), in which *s* deletes before stem-initial *ɬ*, seems to suggest the latter to be true. If so, the process of *s*-deletion has no crucial bearing upon s-Palatalization.

On the other hand, the deletion of the *l*-classifier (which is mutually exclusive with the *s*-classifier) is crucially ordered with respect to s-Palatalization. Before discussing the ordering relationship of these two rules, I will examine an alternative analysis of the surface stem-initial *c*.

The following alternative analysis has been inspired by the phonological relationship between *c* and *y* observed in other Athapaskan languages, particularly Chipewyan and Chilcotin. In these languages, *c* and *y* pair off as stem-finals, exactly as do other homorganic pairs of voiceless and voiced fricatives (e.g., *s:z, t:l, x:ɣ,* etc.) in the alternation of the light syllable (in imperfective stems) and heavy syllable (in perfective stems). In some Slavey dialects, in which such an alternation does not exist because of the loss of most PA final consonants, *y* and *j* alternate freely (i.e., nonfunctionally) as noun-stem initial consonants. In Sarcee, *c* pairs off with *j* instead of *y* in the alternation of the two syllable types (see 10.20), but in stem-initial position *c* apparently alternates morphophonemically (i.e., nonfunctionally) with *y* instead of *j,* which does not occur in that position. In Chipewyan and Chilcotin, *c* pairs off with *y* functionally where *j* does not exist in the phonemic inventory. In Sarcee, *c* pairs off nonfunctionally with *y* in initial position where *j* does not occur. In other words, *c* to *j* in final position is *c* to *y* in initial position. Having established this phonological relationship, it is only natural to derive *c* from *y* via the devoicing rule discussed earlier. There is no need, then, to have an extra rule like s-Palatalization to explain the stem-initial *c*.

Although this alternative analysis is attractive both synchronically and diachronically, there is one instance of opaque *y* which cannot be explained if the surface *c* is described by devoicing (see the following subsections). With either analysis, however, the case for the underlying voiced continuants is strengthened, and it is only the underlying (not derived) *y* that may surface as *c* (see 0.42 for a similar alternation in initial position).

11.13. l-Vocalization (and Deletion) and s-Palatalization.

The Sarcee reflexes of the Athapaskan *l*-classifier are *a* and *i* following *a* and *i* respectively, and zero following a consonant. I have argued elsewhere (Cook 1971b) for the synchronic reality of *l,* which can be illustrated with the following examples:

(6)	a.	ɣi-	ɣi-	Ø-	l-	dál	⟶	yāādál	'He's eaten them (berries).'
		obj	asp	subj	C	stem			
	b.	Ø-	ɣi-	ni-	l-	dál	⟶	yíídál	'You've eaten them.'
	c.	Ø-	ɣi-	s-	l-	dál	⟶	yīsdál	'I've eaten them.'

The derivation of (6a) involves two other rules. The *ɣi-* perfective becomes *a* (see Rule [11] for constraints). It is apparent that the classifier *l* assimilates to this derived vowel rather than to the underlying vowel. The vowel of the object prefix *ɣi-* is deleted before *a,* yielding the final form. The following derivation illustrates the rule ordering:

Input	ɣi	+	ɣi	+ l +	dál
	ɣi	+	a	+ *l* +	dál
	ɣi	+	aa	+	dál
	ɣaa			+	dál

The derivation of (6b) involves the deletion of the subject prefix *ni-* (2sg) and the glide formation of ɣ (see 11.16). The classifier *l* then assimilates to the immediately preceding vowel. This derivational process is illustrated by the following:

Input	ɣi	+	*ni*	+ l +	dál
	ɣi	+		*l* +	dál
	ɣii			+	dál
	yii			+	dál

In (6c), the classifier *l* deletes following the consonant, *s.* The glide formation also applies, as in (6b). Putting details aside, the *l*-vocalization and deletion rule can now be formulated as follows:

Rule (3):
l-Vocalization & Deletion $\quad l \longrightarrow \begin{Bmatrix} V_l/V_l\text{——} \\ \text{Ø/C——} \end{Bmatrix}$

(See Rule [9])

The subpart of Rule (3) that is crucially related to s-Palatalization is the deletion process. As shown by the following two examples, the underlying *l*-classifier blocks s-Palatalization from applying:

(7)

a.	i-	di-	s-	l-	yìɬ	→	ídísyìɬ	'I'll stumble (against something).'
	obj	asp	subj	C	stem			
b.	ni-	á-	tsì-	ni-	s-	l- yìɬt	→	nátsìnìsyìɬt 'I banged my head against you.'
	PP	obj	asp	subj	C	stem		

It is clear that l-Deletion does not feed s-Palatalization. In order to account for this fact, the rules must be properly ordered. It should be emphasized that unordered rules or simultaneous application of the rules will not explain the data such as those in (7), which are opaque with respect to s-Palatalization. Nor does the ordering of these two rules account for all those same data. A second set of apparent counterexamples to s-Palatalization involve stems whose initial *y* derive from underlying γ via a rule of glide formation.

11.14. Initial γ and s-Palatalization.

In the following examples, the apparent stem-initial *y* does not contract with the preceding *s* even though there is no underlying *l*-classifier:

(8)	a.	nìs*yíɬ*	'I will be crazy.'
	b.	nìy*íɬ*	'He will be crazy.
	c.	nìsìs*yīl*	'I am out of my mind.'
	d.	nìsí*yīl*	'You are out of your mind.'

The classifier in the above verbs is zero. If the classifier were *l-*, (8b) and (8d) would be **nìì́yíɬ* and **nìsííyīl* respectively. If the classifier were *d-*, the stem-initial would be *dj* instead of *y* (see d-Effect). And with the *s*-classifier, (8b) and (8d) would be **nìsyíɬ* and **nìsísyīl* respectively. Since there is neither an underlying *l* between *s* and *y* nor any other form which may occur in place of the *l*-classifier, the reason for the opacity of s-Palatalization apparent in (8) should be found elsewhere. The following verb paradigm provides a clue:

(9)	a.	ìnīs*xàɬ*	'I'll hit him.'
	b.	sīsx*àɬ*	'He'll hit me.'
	c.	ìnīs*yīl*	'I've hit him.'
	d.	sìnís*yīl*	'He's hit me.'

Just like (8a) and (8c), the latter two forms in (9) are apparent exceptions to s-Palatalization. Notice in the above paradigm the alternating stems, namely *-xàɬ* (imperfective) and *-yīl* (perfective). The stem inflection in the above paradigm also involves the vocalic ablaut (a ⟶ i) together with the tonal alternation (L ⟶ M). Therefore, the stem-initial alternation of *x* and *y* is incidental to the vocalic ablaut; that is, the underlying stem-initial of (9) is γ, which becomes *y* by a process of glide formation similar to the γ

of γ*i*-perfective in (6b-c), or it becomes devoiced (γ ⟶ x) following a voiceless consonant, for example, *s*. This means that the stem-initial *y* of (8) and (9), which derives from underlying γ, does not contract with *s*. The second set of apparent counterexamples can be explained by postulating γ as the stem-initial consonant for verbs like (8) and (9) and by ordering the glide formation rule after s-Palatalization, as illustrated by the following sample derivation:

di + s + yáh	Input	ni + s + γíɬ
di + cáh	s-Palatalization	—
-	Glide formation	ni + s + yíɬ
dìcáh 'I'll start off.'	Other rules	nìsyíɬ 'I'll be crazy.'

Instead of the s-Palatalization, a devoicing rule would generate **nìsxíɬ* if it applied before the glide formation rule, or **nìcíɬ* if it applied after the glide formation rule. In either case, the correct surface form could not be generated.

The underlying stem-initial γ postulated above raises two questions, one relating to the issue of "absolute neutralization" (Kiparsky 1973), and the other relating to the status of voicing in stem-initial continuants. These questions arise from the fact that the underlying stem-initial γ does not surface in the paradigm of either (8) or (9). In other words, neither verb stem contains an allomorph whose initial is γ.

In (8) the underlying γ is always in the environment of glide formation, that is, before *i*, because the stem inflection does not involve any vocalic ablaut where the vowel is always *i*. In (9), the underlying γ is always in the environment of devoicing, that is, after *s*, because the *s*-classifier always co-occurs with the stem. In order to avoid this problem, one might assume that the underlying stem-initial in both (8) and (9) is *y*. The obvious consequence of this solution is that these stems have to be treated as exceptions to s-Palatalization. Furthermore, it is extremely unnatural to consider that *y*, which is voiced before *i*, becomes voiceless before *a* (cf. sequences *syī* and *sxà* in [9]). Considering these consequences and other verb paradigms such as *-γòɬ* (A), *-yīl* (B) 'to hit with a club,' in which *y* alternates with γ, it seems most reasonable to consider γ is the underlying stem-initial in verbs like (8) and (9) although γ never surfaces on the phonetic level.

This conclusion sheds new light on the status of voicing in stem-initial fricatives. In 11.11 two alternative views are considered: (i) where the underlying initial continuant (fricative or lateral) is considered voiced, a devoicing rule converts the voiced stem-initial to a voiceless counterpart

after a voiceless segment or a null segment; alternatively, (ii) where the stem-initial is considered voiceless, a voicing rule applies to the voiceless stem-initial after a voiced segment. The data presented in (4) support solution (i). The data in (9) further support solution (i) because, given that both *x* and *y* occur after *s*, a voicing rule does not work. On the other hand, a devoicing rule works where γ is converted to *y* preceding stem vowel *i* before the devoicing rule applies to γ and other stem-initial fricatives and laterals. The derivations of (9b) and (9c) illustrate this process:

(9b)	si + s + γàɬ	Input	(9c)	i + ni + s + γīl	Input
	-	Glide Formation		i + ni + s + yīl	Glide Formation
	si + s + xàɬ	Devoicing		-	Devoicing
	sìsxàɬ	Other rules		ìnīsyīl	Other rules

On the other hand, a solution with a voicing rule which will apply to the voiceless stem-initial continuants yields a very unnatural consequence. The rule that is unnatural is not that of voicing, but that of glide formation, which, as assumed in the above derivations, must apply before the voicing rule. The reverse order would have the same problems; see the following subsections. If it is assumed that underlying *x* becomes *y* before *i*, one must also assume that the voicing of *y* is incidental to the glide formation, since there is no independent process for the voicing. The reverse rule order does not help because *x* happens to always follow *s*, which prevents *x* from being voiced.

With this observation, I now propose the following three conclusions regarding stem-initial continuants: (i) all verb-stem initial continuants are underlyingly voiced and the voiceless alternates are due to a devoicing process, (ii) in some stems initial γ neutralizes with *y* in every form of the paradigm because of glide formation, and (iii) s-Palatalization does not apply to initial *y*, which derives from underlying γ.

11.15. C-Palatalization and Initial γʸ.

C-Palatalization is a regressive assimilation by which any nonpalatal sibilant or sibilants (including affricates) become palatalized if there is a palatal sibilant on the right within a word. There are two characteristics of this process. First, it is iterative; that is, it affects all the sibilants on the left of the palatal sibilant in the word. Second, it is discontinuous in that there may be one or more segments between the palatal, which triggers the assimilation, and the nonpalatal, which is palatalized.[3] The following exemplifies this process:

(10) a. si-tcógò ⟶ cì-tcógò 'my flank'
cf. sí-tsàγà 'my hair'
b. na-s-γátc ⟶ nā-c-γátc 'I killed them again.'
cf. yī-s-γá 'I killed them.'
c. sa-ts'i-gu-si-ni-s-yáy ⟶ cá-tc'ì-gù-cì-cáy 'You forgot me.'
d. mi-ts'ì dī-si-s-γùct ⟶ mī-ts'ì dī-cī-c-wùct 'I whistled to him.'

The first two examples are straightforward, but the second two examples require further comments. In (10c), C-Palatalization is triggered by *c*, which derives from the contraction of stem initial *y* and preceding *s*. In other words, C-Palatalization is fed by s-Palatalization. In (10d), the assimilation is triggered by an underlying *c* in the stem. Notice that C-Palatalization does not affect the sibilant which is outside of the domain of the rule. The stem-initial γ of (10d) becomes *w* by a rule of glide formation (see 10.6).

Apparent counterexamples to C-Palatalization include those in (11) in which *c* (palatal) appears where *s* (nonpalatal) is expected.

(11) a. īnīcγá 'I am named'
b. ìcīcwú 'I am ready'
cf. dínísγāl 'I am round', dínásγāl 'ye are round'

In both examples, *c* represents *s-* (1sg subject). With respect to examples like these, C-Palatalization is opaque in that there is no palatal sibilant which causes the palatalization of *s* to *c*. Two hypotheses may be presented. First, one may assume that a palatal sibilant which had caused the palatalization has been deleted by a subsequent rule. The only place in which such a palatal sibilant might occur is word final, but there is no evidence to support this assumption. This leads one to a second hypothesis: that the only consonant to the right of *c*, namely the stem-initial, is an underlying palatal. In other words, γ of (11a) and *w* of (11b) derive from a palatal fricative (perhaps a sibilant). This assumption makes good sense in light of the glide formation that converts γ to *w* before *u*. This process and the apparent output of C-Palatalization suggest that both γ and *w* represent the same initial consonant, whatever that may be. Since the glide formation accounts for the initial *w*, there remains only one thing to be explained: the difference between the γ which causes the palatalization and the γ which does not. It is quite obvious at this point that the γ which causes C-Palatalization derives from a dorso-palatal (i.e., γ^y), which merges on the phonetic level with the γ that does not cause C-Palatalization (see Cook 1978b).

There still remains one important question to be answered, and that concerns the phonological property that triggers C-Palatalization. On the

phonetic level it is obvious that the consonant which triggers the palatalization is a palatal sibilant, that is, [+ high, + coronal + strident]. This suggests that (at least, one has to assume that) γ^y is also a strident consonant; if, however, γ^y is not a strident consonant, that is, [+high, +coronal, −strident], it seems reasonable to assume that stridency has nothing to do with C-Palatalization. In other words, while the segment which undergoes the assimilatory process is a strident consonant, the segment which triggers the process may not necessarily be one. On the basis of this reasoning, I now propose an approximation of C-Palatalization briefly discussed in chapter 10:

Rule (4): C-Palatalization

$$\begin{bmatrix} +\text{coro} \\ +\text{stri} \\ -\text{high} \end{bmatrix} \longrightarrow [+\text{high}] \;/\; \underline{\quad\quad} \ldots \begin{bmatrix} +\text{coro} \\ +\text{high} \end{bmatrix} \ldots \#^4$$

With the underlying stem-initial γ^y, (11a) and (11b), which were presented as apparent counterexamples, are no longer exceptions to the regular process of C-Palatalization, as shown by the following derivations:

(11a)		(11b)
i + ni + s + γ^yá	Input	i + si + s + γ^yú
i + ni + c + γ^yá	C-Palatalization	i + ci + c + γ^yú
-	Glide Formation	l + ci + c + wú
i + ni + c + γá	Depalatalization	-
īnīcγá	Other Rules	ìcīcwú

The derivations show that the apparent counterexamples to C-Palatalization are accounted for by postulating underlying stem-initial γ^y and ordering C-Palatalization and Glide Formation (and Depalatalization) in that sequence. The derivations also show that γ^y merges with γ either by undergoing Glide Formation or Depalatalization. Synchronic and diachronic implications of this analysis are discussed elsewhere (Cook 1978b).

11.16. Glide Formation and Neutralization of γ and γ^y.

In the preceding subsections I referred to Glide Formation without discussing the details of the rule. Evidence for this process was presented in (6), (9), and (11). Since there are several interesting theoretical problems associated with this process, it is worth one's while to examine the details of this rule.

Assuming that γ^y is a well motivated abstract segment, although it does not surface on the phonetic level, Glide Formation applies to γ and γ^y, converting them to *y* before *i* and *w* before *u* respectively, that is,

$$\begin{Bmatrix} \gamma \\ \gamma^y \end{Bmatrix} \longrightarrow \begin{Bmatrix} y/\underline{\quad}i \\ w/\underline{\quad}u \end{Bmatrix}$$

The most transparent case of this process is seen where γ alternates with *y* because of vocalic ablaut, as in the following examples:

(12) a. gídīīγ*ás* 'They will run away.'
b. dāsγ*ás* 'Ye will run away.'
c. gáā*yīs* 'They are on the run.'
d. γās*yīs* 'Ye are on the run.'

The difficulty of justifying glide formation as a synchronic rule similar to the one suggested above is that there is not a single verb paradigm in which γ alternates with both *y* and *w*, and that the underlying γ^y (if justifiable in a synchronic grammar) is realized always by *w* in the stems whose vowel is invariably *u*. As mentioned in chapter 10, if the basic vowel is *u*, the inflection involves no vocalic ablaut, whereas if the basic vowel is *a*, its ablaut vowel is *i* or (very rarely) *u*. It seems reasonable to assume that the lack of *u*, as an ablaut vowel, in the verbs whose stem-initial is γ or γ^y is accidental. In other words, *y* and *w*, which may represent initial γ or γ^y depending upon the quality of vowel of the stem, are mutually exclusive with respect to a given paradigm because of accidental vocalic ablaut. As shown in (12), with initial γ and in (13) with initial γ^y, [γ] and [y] alternate in a paradigm, whereas γ and γ^y are always realized by [w] as shown in (14) and (15):

(13) a. nà-dzá-ná-di-s-s-γ^yì ⟶ nādjánádìcyì 'I'll be refreshed.'
b. nà-dzá-ná-di-s-γ^yáy ⟶ nādjánádīcγáy 'He's become refreshed.'

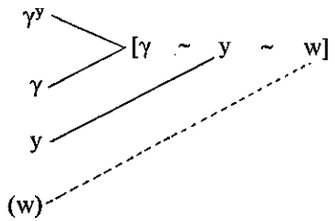
(14) a. ni-s-γūtc ⟶ nìcwūtc 'I wink.'
b. ni-si-s-γūn ⟶ nìsīswūn 'I winked.'

(15) a. i-ni-s-γ^yùł ⟶ ícwùł 'You scrape (a hide).'
b. i-s-γ^yùł ⟶ ìcwùł 'He was scraping (a hide).'

(16) a. ni-s-γíł ⟶ nìsyíł 'I will be crazy.'
b. ni-si-s-γìl ⟶ nìsìsyīl 'I am out of my mind.'

(17) a. ná-s-γʸí ⟶ nácyí 'I will melt.'
b. i-si-s-γʸí ⟶ ìcícyí 'I thawed it out.'
c. ná-γi-s-γʸíɬ ⟶ náyīcyíɬ 'I am melting.'

One of the serious concerns that might be raised with respect to the glide formation vis-à-vis the data presented above (12–17) is the problem of absolute neutralization of two different sorts. In the previous subsection, an argument was presented to justify abstract γ^y on the basis of C-Palatalization. Examples (12) and (13) show that this abstract segment merges with underlying γ by undergoing the same rule and by being realized by the same phones on the phonetic level. However, the merger involves not only γ and γ^y on the phonetic level, but also *y* which is invariably *y* except when it contracts with *s* (s-Palatalization) or *d* (d-Effect) and possibly *w* whose status as an underlying segment is questionable (see Rules [6–7]). The following sums up this observation:



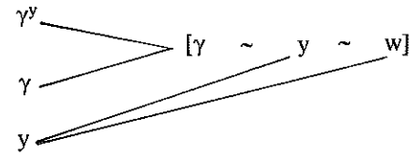
One type of absolute neutralization involves γ^y, which never surfaces anywhere in contemporary Sarcee—it is always realized by γ, *y*, or *w*. Another type of absolute neutralization involves γ^y, or γ which is realized by either *w*, as in (14–15), or *y*, as in (16–17) in a given paradigm. In other words, no form in the paradigm 'to wink' (14) has initial γ, nor does any form in the paradigm 'to be crazy' (16) have initial γ, although γ occurs elsewhere both in underlying and surface phonology.

One might be tempted to propose that the stem-initial of (14) is *w* instead of γ, given that the abstract stem-initial is always represented by *w* on the phonetic surface. This does not eliminate the problem entirely because of stems like (15), in which the underlying dorsopalatal has to remain to trigger C-Palatalization. Similarly, the underlying stem-initial of (16) cannot be *y* because of s-Palatalization.

As indicated, I assume that there is no underlying *w* so far as verb stems are concerned, since all cases of stem-initial *w* derive from underlying γ or γ^y by Glide Formation. This coincides with historical fact. However, there is one case of stem-initial *w* which does not derive from γ or γ^y. Consider the following:

(18) a. xàyìnī*wúd* 'He drives him out.'
b. xānīyí*cùd* 'I drove him out.'

The second of these examples suggests that the stem-initial is *y* which contracts with *s*, that is, s-Palatalization has applied. This eliminates the possibility of deriving *w* (18a) from underlying γ, leaving the possibility that the underlying stem-initial is either *y* or *w*. If the latter is true, s-Palatalization has to be revised, so that *w* must be included along with *y* on the left of the arrow. If the former is true, a rule like y ⟶w /____u ("Back Gliding", Cook 1978c) is needed. As discussed in detail elsewhere (Cook 1978c), Back Gliding is a diachronic rule, but whether this rule remains as a synchronic rule in Sarcee is not easy to determine, especially because (18) is the only recorded instance showing the surface alternation of *w* and *c* as stem-initials. Assuming that Back Gliding is a synchronic rule and that all cases of surface *w* derive from γ, γ^y, or *y*, the phonetic realizations of underlying stem-initials that have been discussed in this subsection can be summarized as follows:



Another problem that arises from the abstract segment γ^y is Depalatalization and its relation to Glide Formation. In the derivation of (11a), it is assumed that Depalatalization is independent of Glide Formation and that it applies after Glide Formation. If these are two independent rules, the order must be reversed so that the rule of Glide Formation can be simplified as Hofer (1974) suggests. In other words, once C-Palatalization applies, the distinction between γ and γ^y is no longer necessary and γ^y is depalatalized, that is, γ and γ^y are neutralized at this point of derivation. In this case the input of Glide Formation is simply γ instead of γ and γ^y. An alternate derivation of (11a) and (11b) illustrates this point:

(11a)		(11b)
i + ni + s + γʸá	Input	i + si + s + γʸú
i + ni + c + γʸá	C-Palatalization	i + ci + c + γʸú
i + ni + c + γá	Depalatalization	i + ci + c + γú
-	Glide Formation	i + ci + c + wú
īnīcyá 'I'm named'	Other Rules	ìcīswú 'I'm ready'

For future reference I formulate the two rules as follows:

Rule (5):
Depalatalization: $\gamma^y \longrightarrow \gamma$

Rule (6):
Glide Formation $\gamma \longrightarrow \begin{Bmatrix} y/\_\_\_i \\ w/\_\_\_u \end{Bmatrix}$

Needless to say, the most unsatisfactory aspect of this solution is that Depalatalization, being context-free, is ad hoc. In view of this, I suspect that the above two rules might comprise a larger rule, provided that a certain subpart of the rule may apply vacuously. Thus, the following rule:

Rule (7):

$$\begin{Bmatrix} \gamma \\ \gamma^y \end{Bmatrix} \longrightarrow \begin{Bmatrix} y/\_\_\_i \\ w/\_\_\_u \\ \gamma \text{ elsewhere} \end{Bmatrix}$$

11.17. D-Effect.

The d-effect rule is probably the best known phonological process of Athapaskan. This is a contraction or coalescence of *d* and the immediately following stem-initial consonant. The *d* involved in this process is either the *d*-classifier or the *d* of the first person dual/plural subject prefix (i.e., *aad-* (Sarcee), *iid-* (Navajo). Howren's study (1971) of this process covering five Athapaskan languages is the most comprehensive and systematic work that reveals a basic regularity stated in terms of distinctive features.

The Sarcee d-effect process can be briefly summarized as follows:

Rule (8):
d-Effect

$$d + \begin{bmatrix} \begin{Bmatrix} \gamma^y \\ y \end{Bmatrix} \\ z \\ l \\ \gamma \\ ? \\ C \end{bmatrix} \longrightarrow \begin{bmatrix} dj \\ dz \\ dl \\ g \\ t' \\ C \end{bmatrix}^5$$

C = any other consonant.

The stem-initial consonants that are affected by this process are those shown above and the rest of the consonants (C) remain intact as the *d* is deleted. The following examples illustrate this process:

(19) a.	si-s-d-γ^{y}o	⟶ cīcdjó	'I am old.'
	cf. ni-si-s-γ^{y}a	⟶ nīcīcyá	'I grew up.'
b.	γi-s-d-γ^{y}in	⟶ yícdjín	'I sang.'
	cf. mi-γi-s-γ^{y}in	⟶ míyīcyín	'I sang it.'
c.	na-i-s-d-ził	⟶ náàsdzíł	'I will warm myself.'
	cf. i-s-s-ził	⟶ īsíł	'I will warm it.'
d.	a-na-ni-d-la?	⟶ ánánìdlà?	'You've done it again.'
	cf. a-ni-la?	⟶ ánìlà?	'You made (did) it.'
e.	i-γod	⟶ īyód	'He is shaking it.'
	cf. i-di-d-γod-i	⟶ ìdìgódí	'The one who shakes himself.'
f.	γi-s-d-?in	⟶ yìst'í(n)	'I am seen.'
	cf. γi-s-?in	⟶ yīs?í(n)	'I saw him.'

Whether or not d-Effect in Sarcee is a synchronic rule is not so apparent. The crucial evidence to justify this process as a synchronic rule lies in the justification of the *d*-classifier as a functional element in the synchronic grammar. As discussed in chapter 6 and elsewhere, the *d*-classifier appears commonly in the passive and reflexive themes, but it is very difficult to determine the productivity of the theme derivation. The analytical difficulty is twofold: (i) where the surface consonant is one of those on the right of the arrow in Rule (8), it is not always possible to determine whether the consonant is an underlying or a derived segment, for example, *dl* may be *dl* underlying or derived from *d* + *l;* (ii) where the surface consonant is other than those five, it is important to tell whether there is *d* or not because it is deleted.

A second problem associated with d-Effect is the aberrant behaviour of *d* in *aad-* 'we.' This prefix may occur immediately preceding a stem where the classifier is zero, and when it does it is expected that d-Effect would apply. This is, in fact, the case in Dogrib and in other languages. In Sarcee, however, the final consonant of *aad-* does not behave in the same way as the *d*-classifier in the process of d-Effect; that is, where the *d* of *aad-* is involved, the d-effect applies only if the stem-initial is *l* and then only on occasion. This means that the *d* of *aad-* is deleted everywhere except where the stem-initial is *l*. As shown in the following examples, *d* of *aad-* is regularly deleted preceding a stem-initial consonant other than *l:*

(20) a. nà-γi-aad-Ø-zīd ⟶ nàγāàzīd 'We stood.'
*nàγāàdzīd
b. i-di-si-aad-Ø-ʔàz ⟶ īdīsáàʔàz 'We kicked.'
*īdīsáàt'àz
c. a-di-ni-aad-Ø-yáh ⟶ ádīnāàyáh 'We aim straight.'
*ádīnāàdjáh
d. (i)-si-aad-Ø-γód ⟶ īsāàγód 'We are shaking it.'
*īsāàgóʔ
e. di-si-aad-s-ʔòʔ ⟶ dìsáàʔòʔ 'We sent him.'
*dìsáàt'òʔ

In all of the above examples (except perhaps the last where the classifier is *s*-), the segment *d* is expected to trigger d-Effect, but it is simply deleted. In the case of (20e), the *d* is deleted along with the *s*-classifier which follows immediately.

The final *d* of *aad-*, however, imparts d-Effect in some stems whose initial is *l* as shown in the following examples:

(21) a. a-si-aad-Ø-láh ⟶ áàsáàdláh 'We will make it.'[6]
cf. a-ni-Ø-láh ⟶ ánìláh 'You will make it.'
b. tsì-ni-si-aad-Ø-lit ⟶ tsìnìsáàdlìt 'We will hire you.'
cf. tsì-ni-Ø-lìt ⟶ tsìnìlìt 'He will hire you.'

As shown in (19d) and (21), the *d* of the classifier and of the pronominal prefix imparts d-Effect on the stem-initial *l*. The aberrant behaviour of *d* of *aad-*, however, is shown in the following examples. In these, the *d* is deleted, as in (20), despite the fact that the *d* occurs in the same phonological environment as those in (21):

(22) a. si-aad-Ø-líh ⟶ sáàlíh 'We tasted it.'
b. i-si-aad-Ø-lùh ⟶ īsāàlùh 'We will lasso him.'
c. ni-si-aad-Ø-lúz ⟶ nìsāàlúz 'We sewed it.'

The forms in (21) and (22) indicate that *d* of the pronominal prefix imparts d-Effect in *some* *l*-initial stems. However, the *d* of the classifier imparts d-Effect in *all* *l*-initial stems. At the moment there does not seem to be any plausible explanation for this irregularity. An interesting question is whether the irregularity of d-Effect for Sarcee is due to a change from a regular process such as that of Dogrib (where the *d* of the classifier or the pronominal prefix triggers d-Effect in all verbs of proper phonological structure), or conversely whether the regularity of the Dogrib d-effect rule

(see Howren 1971) is a recent innovation. In other words, is the change from a regular process to an irregular one, or vice versa? If the latter is the case, one could perhaps explain the change in terms of analogy. If the former is the case, then no explanation for the cause is available. In any case, the Sarcee rule cannot be stated without identifying the source of *d* and distinguishing those *l*-initial stems which are subject to the rule from those which are not.

It should be mentioned that there is another source of stem-initial *dl* (other than the underlying segment and the output of d-Effect). Consider the following sets of verbs:

(23) a. si-s-Ø-lùh ⟶ sīstɬùh 'I lassoed him.'
b. si-ni-Ø-lùh ⟶ sílùh 'You lassoed him.'
c. γi-si-Ø-lùh ⟶ yìsdlùh 'He lassoed him.'
d. as-Ø-lùh ⟶ āɬùh 'Ye will lasso him.'

(24) a. si-s-Ø-lúh ⟶ sīstɬíh 'I tasted it.'
b. si-ni-Ø-líh ⟶ sílīh 'You tasted it.'
c. γi-si-Ø-líh ⟶ yísdlíh 'He tasted it.'
d. si-as-Ø-líh ⟶ sáɬíh 'Ye tasted it.'

From the (b) forms above, it is clear that the stem initial is *l* rather than *tɬ* or *dl*. Notice that the *si*-perfective is reduced to *s* in the (c) forms. The *si*-reduction rule which applies in some verbs where the subject is a third person, yields the same *sl* sequence as in (b) and (d). What is interesting is that the same (nonsurface) *sl* sequence in the three different forms, namely (a), (c) (after *si*-reduction), and (d) is manifested on the phonetic level in three different shapes, namely *tɬ, dl,* and *ɬ*. In (d), the *s* of *as-* (2pl) devoices the initial *l* and deletes. The *s*-deletion rule is discussed in connection with the data presented in (2). The *s* of (c), which results from the *si*-reduction, causes the same stem-initial change as d-Effect. In (a), the *s* (1sg) and initial *l* yields *stɬ*. I am not sure whether the third source of initial *dl* has anything to do with the irregularity of d-Effect involving the *l*-initial stems, but it is clear that a simple solution of rule ordering is not satisfactory for a complicated problem. The d-effect rule cannot be stated without identifying the source of *d* because of the irregularity involving the *l*-initial stems as shown above. Similarly, the three different manifestations of the stem-initial *l* in (23–24) cannot be stated without identifying the sources of *s*. This point is illustrated further by the following theme, which derives from the same root as that of (23) by replacing the classifier:

(25) a. i-di-s-s-lùh ⟶ ídístɬùh 'I will drive. (horses with reins)'
b. i-di-ni-s-lùh ⟶ ídíɬùh 'You will drive.'
c. i-di-s-lùh ⟶ ídīɬùh 'He will drive.'
d. i-di-āàd-s-lùh ⟶ ídāàlùh 'We will drive.'

The *s*-classifier devoices the initial *l* in all but the last (25d) and then deletes. In (25a) the sequence *sl* (after the deletion of *s*-classifier), becomes *tɬ* as in (23a) and (24a). Notice that the *s* (which does not derive from *si-*) in (25b-c) does not yield *dl*. Notice also that the *d* of *aad-* in (25d) does not impart d-Effect after the deletion of the *s*-classifier. It is still not known whether the *s*-classifier and the pronominal *s* (1sg) are deleted by the same rule in all cases, or by different rules.

Returning to d-Effect, I shall examine how it interacts with other rules. For the sake of discussion I assume that Depalatalization (Rule [5]) and Glide Formation (Rule [6]) constitute one rule, namely Rule (7). Data like (19a) suggest that d-Effect (Rule [8]) precedes Rule (7). If Depalatalization were to apply first, the initial γ^y of (19a) would become γ feeding Rule (8), which in turn would convert γ to *g* (i.e., **sīsgó*). Since the initial γ^y is not depalatalized and has undergone d-Effect maintaining the palatal feature, the output of Rule (8) feeds C-Palatalization. The feeding relationship between d-Effect and C-Palatalization is clear, but it is not clear what relationship holds between Depalatalization/Glide Formation and d-Effect, mainly because of the paucity of data. Forms like (19e) merely show d-Effect, and since there is no vowel ablaut (e.g., o ⟶ i), one cannot tell whether (i) γ would become *y* (by Glide Formation) and then *dj* (by d-Effect), or (ii) *g* (by d-Effect), although (19a) suggests the latter would be the case.

11.20. CLUSTER REDUCTION AND LATERAL AFFRICATION.

Several cases in which a consonant is deleted have been given without discussing the nature of the rule. For example, in (5c) the *ss* cluster is reduced to *s* before or after s-Palatalization, in (2c) the *sl* cluster becomes *ɬ*, and in (6c) the *sld* sequence becomes *sd*. I shall cite below these and other relevant data to examine the nature of the rule(s) involved:

(26) a. mi-s-s-yúɬ ⟶ mícúɬ 'I am blowing it.'
b. tsì-si-as-líh ⟶ tsìsàɬīh 'Ye will hire me.'
c. γi-s-l-dál ⟶ yīsdál 'I've eaten them (berries).'
d. i-di-s-s-lùh ⟶ ídístɬùh 'I will drive (a horse).'
e. i-di-aad-s-lùh ⟶ ídáàlùh 'We will drive.'
f. di-si-aad-s-ʔòʔ ⟶ dìsáàʔòʔ 'We sent him.'

One thing to be determined with respect to the above data is the number of rules that are needed. One rule that seems reasonable to propose is a triconsonant cluster reduction by which the middle C of CCC is deleted. This seems to work for examples like (26a) and (26d), in which the second *s* is deleted, after which the *sy* of (26a) becomes *c* (by s-Palatalization) and the *sl* of (26d) become *stɬ* (see the preceding section). However, it is not clear whether this rule deletes the *s* in (26e-f) or another rule deletes the sequence *ds* in these forms. A comparison of (26b) and (26e) reveals that the *s* of the former devoices the stem-initial *l* (see Rule (1)), whereas the same segment in the latter does not. Notice that the *s* which devoices the initial *l* is the first member of CC whereas the *s* that does not devoice the initial *l* is the second member of CCC. To explain how the initial *l* is devoiced in (26b) and the same segment is not in (26e), a triconsonant reduction rule must be ordered before Stem-Initial Devoicing (Rule [1]). In other words, the *s* in (26e) is deleted by a triconsonantal reduction process (see Rule [9] below), so that it cannot devoice the stem-initial *l*.

Rule (9):
Triconsonantal Reduction: C ⟶ Ø /C___C

As mentioned in the preceding section, the *d* of *aad-* (1pl) does not impart d-Effect except in a few *l*-initial stems. This means that the *d* of (26e-f) is deleted by a rather irregular process.

If Rule (9) is a well-motivated rule, Rule (3) (l-Vocalization and Deletion) can be simplified by deleting the latter subpart of Rule (3) because *l* is deleted by Rule (9), as shown in (26c). In fact, the *l*-classifier and the *s*-classifier are the only segments[7] that are deleted by Rule (9) simply because they are the only forms which may occur in that particular environment. In short, it cannot be determined at this point whether Rule (9) is an independent rule or part of Rule (3) and Rule (8).

If Rule (9) is an independent rule, this rule has to apply before Stem-Initial Devoicing (Rule 1) as shown in sample derivation (i): otherwise, the stem-initial *l* of (26e) would be devoiced.

(i)

(26b)		(26e)
tsì-si-as-lìh	Input	i-di-āàd-s-lùh
-	Rule (9)	i-di-āàd-lùh
tsì-si-as-ɬìh	Rule (1)	-
tsìsàɬìh	Other rules	ídāàlùh

The irregular nature of the final *d* of *aad-* 'we' was noted earlier. The other rule involved in deriving (26e) is the deletion of this *d*, which apparently has to apply before d-Effect. Two other rules which are involved in the derivation of (26b) are the one which deletes *i* before *a* (see 11.32) and the one which deletes *s* before *ɬ* (s-Deletion). The nature of this last rule is difficult to ascertain. First, it cannot be determined whether this rule applies in the derivation of (26a). If it does, s-Palatalization applies before s-Deletion (assuming that *s* deletes not only before *ɬ* but also before *c*) as shown in sample derivation (iia); otherwise, (26a) is derived by Triconsonantal Reduction and s-Palatalization in that order without involving s-Deletion as shown in sample derivation (iib):

(ii) a.			b.		
	mi-s-s-yúɬ	Input		mi-s-s-yúɬ	Input
	mi-s-cúɬ	Rule (2)		mi-s-yúɬ	Rule (9)
	mi-cúɬ	s-Deletion		mí-cúɬ	Rule (2)

A second problem with s-Deletion is that *s* does not always delete before *ɬ* (l ⟶ *ɬ* by rule (1)). This problem was briefly mentioned in presenting data (25). Consider the following data:

(27) a.	i-di-s-s-lùh	⟶ ídístɬùh	'I'll drive (horses with reins).'
b.	i-di-s-lùh	⟶ ídīɬùh	'He will drive.'
c.	si-as-líh	⟶ sáɬíh	'Ye tasted it.'
d.	ɣi-si-líh	⟶ yísdlíh	'He tasted it.'

After the application of Triconsonantal Reduction and Stem-Initial Devoicing, (27a-c) would have the same sequence of consonants, namely *sɬ*. This sequence becomes *stɬ* in (27a) and *ɬ* in (27b-c). This seems to be attributable to the morphemic identity of *s;* that is, if the *s* represents 1sg as in (27a) where the classifier *s* is deleted by Rule (9), s-Deletion does not apply (cf. si-s-lih ⟶ sīstɬíh 'I tasted it'); whereas if the *s* represents the *s*-classifier, as in (27b) or is the final consonant of *as-* (2pl), s-Deletion does apply. In (27d) the *si*-perfective is reduced to *s* which does not delete before *ɬ* or *l* (whether this *s* devoices *l* may not be relevant). Suppose this reduction rule applies before s-Deletion and that the resultant *s* also devoices the stem-initial *l*. All the four strings of (27) would then have the same consonant sequence *sɬ* at an interim stage of derivation. This means that three different sources of *s* must be specified in order to explain the three different phonetic realizations of *sɬ*.

One might like to propose an alternative solution to the problem which

does not involve any "trace" or morphemic identity of *s*. A set of ordered rules of the following sort appears to offer such an alternative:

1. Stem-Initial Devoicing
2. ssɬ ⟶ stɬ (ɬ ⟶ tɬ/ss____)
3. s-Deletion (s ⟶ Ø / ___⟶ {ɬ, s})
4. si-Reduction
5. sl ⟶ sdl (l ⟶ dl/s____)

The derivations of (27a), (27b), and (27d) illustrate how this proposal works:

	(27a)	(27b)	(27d)
Input	i-di-s-s-lù	i-di-s-lù	ɣi-si-líh
Devoicing	i-di-s-s-ɬù	i-di-s-ɬù	NA
ssɬ ⟶ stɬ	i-di-s-s-tɬù	NA	NA
s-Del.	i-di-s-tɬù	i-di-ɬu	NA
si-Red.	NA	NA	ɣi-s-líh
sl ⟶ sdl	NA	NA	ɣi-s-dlíh
Other	ídístɬù	ídīɬù	yísdlíh

Two weaknesses with this proposal require comment. First, in the derivation of (27a), Triconsonantal Reduction does not apply. Of course, one could use this as evidence against Rule (9). But the crucial data that support Rule (9) are forms like (26e), in which the middle consonant must be deleted by a rule like Rule (9) to prevent the stem-initial *l* from being devoiced. Second, it seems unnatural that *ɬ* becomes affricated (*tɬ*) after *ss* but not after *s*, which is what is assumed in the above proposal. It must be noted that if this proposal is correct, *s* deletes not only before *ɬ* but also before another *s* (see 27a). Furthermore, if derivation (iia) of (26a) above is correct, *s* deletes before *c* as well. In any case, the environment can be specified by three distinctive features, namely [−voice, +strident, +coronal] as in the following rule:

Rule (10):
s-Deletion: s ⟶ Ø / ____ [−voic, +stri, +coro]

In sum, I have considered two cluster reduction rules, namely Rule (9) and Rule (10). The exact nature of these rules and their relationship with other rules, such as devoicing, lateral affrication, and *si*-perfective reduction is not clear at this point. The stem-initial lateral affrication does not render a natural phonological solution, and a morphemic solution, or one which requires derivational history, seems more reasonable.

11.30. γi-PERFECTIVE/PROGRESSIVE AND PREFIX VOWELS.

As mentioned elsewhere in this book, there are several prefixes whose underlying phonological form is *γi*. Two of these homophonous prefixes, the *γi*-perfective and the *γi*-progressive, share interesting phonological properties. The phonological rule which involves these aspect prefixes is related to several other rules that determine the vocalic shape of prefixes, for example, i-Deletion (i ⟶ Ø/___a), i-Assimilation (i ⟶ a/ ___ʔ{a, o}), and so forth.

11.31. γi-Augmentation.

This rule, cognates of which are found in many Athapaskan languages, converts γi to *a* under certain conditions. The conditions that govern this process are both phonological and grammatical. Consider the two sets of examples below: the γi-perfective and the γi-progressive occur in (28) and (29) respectively.

(28)	a.	γi-s-tsàd	⟶ yīstsàʔ	'I have eaten it.'
	b.	γi-ni-tsàd	⟶ yítsàʔ	'You have eaten it.'
	c.	γi-aad-tsàd	⟶ yáàtsàʔ	'We have eaten it.'
	d.	γi-as-tsàd	⟶ yástsàʔ	'Ye have eaten it.'
	e.	γi-γi-tsàd	⟶ yátsàʔ	'He has eaten it.'
	f.	ts'i-γi-tsàd	⟶ ts'átsàʔ	'Someone has eaten it.'
	g.	gi-γi-γi-tsàd	⟶ gīyátsàʔ	'They have eaten it.'
(29)	a.	i-γi-s-zūɬ	⟶ īyīsūɬ	'I am dragging something.'
	b.	i-γi-ni-s-zūɬ	⟶ īyísūɬ	'You are dragging something.'
	c.	i-γi-āàd-s-zūɬ	⟶ īyáāsūɬ	'We are dragging something.'
	d.	i-γi-s-zūɬ	⟶ ásūɬ	'He is dragging something.'

In the first four forms of (28) and the first three forms in (29), the subject is

in the first or second person. In these cases, the *γi*-perfective or the *γi*-progressive is realized as *γ*, where the following (not preceding) high front vowel is deleted before *a* (i-Deletion), or as *yi*, where the vowel triggers Glide Formation. On the other hand, in the remaining forms, the subject is in the third person: 3sg (subj.) is phonologically zero as in (28e) and (29d), 3pl (subj.) is marked by *gi-* as in (28g), and the unspecified subject is marked by *ts'i-* as in (28f). Recall that the specified 3p. object prefix is zero, *mi-*, or *i-* (see chapter 8) where the subject is in the first or second person, whereas it is *γi-* where the subject is a third person.

The γi-augmentation rule (γi ⟶ a) applies only if the subject of the verb is a third person (specified or unspecified) and the *γi-* is preceded by a conjunct prefix. Notice that the rule does not apply in (29a-b) despite the fact that the structure meets the phonological condition, because the subject is not in the third person. In (30), the rule does not apply where the subject is in the third person because what precedes *γi-* is not a conjunct prefix, because there is no segment.

(30)	a.	xà#γi-yā	⟶ xàyíyà	'He has gone out.'
	b.	γi-yál	⟶ yīyál	'He is walking.'
	c.	ná#γi-l-γʸí	⟶ náyīīyí	'It has melted.'
	d.	ná#γi-l-γʸíɬ	⟶ náyìīyíɬ	'It is melting.'

In the examples given so far, the γi-augmentation rule applies where the preceding conjunct prefix happens to have vowel *i* (e.g., *gi-, i-, γi-*). The following examples show that the conjunct prefix has vowel *u:*

(31)	a.	gu-γi-láɬ	⟶ gwáláɬ	'He is leading them.'
	b.	gu-γi-tīɬ	⟶ gwātīɬ	'It is freezing up.'
	c.	gu-γi-l-nìj	⟶ gwāánìj	'He told the news.'

The phonological constraint of the γi-augmentation rule can be summarized as follows:

Rule (11):
γi-Augmentation: γi ⟶ a/ V +____

Needless to say, this rule has to be constrained further, specifying that the input *γi* is either the *γi*-perfective or the *γi*-progressive and that the subject of the sentence is in the third person. This process is well illustrated by (28g) in which the subject *gi-* 'they,' is followed by *γi*$_7$- (obj) which does not

undergo the process, and γi_3- (perfective) which does undergo the process:

Input	gi-γi-γi-tsàd
Rule (11)	gi-γi-a-tsàd
i-Deletion	gi-γ-a-tsàd
Other	gīγatsà?

Notice the first γ*i*- does not undergo γi-Augmentation although it is in exactly the same environment as the second γ*i*-. The examples in (28) show that *i* is deleted not only before an underlying *a*, as in (28c-d), but also before a derived *a* as in (28e-g). I shall examine some details of how γi-Augmentation interacts with other rules in the following subsection.

11.32. i-Deletion, i-Assimilation, u-Devocalization, and na-Dissimilation.

The fact that i-Deletion applies both before an underlying *a* and a derived *a* (⟵ γi) indicates that i-Deletion is ordered to follow Rule (11). While the high front vowel is deleted before *a*, the high back vowel becomes non-syllabic before *a* (u-Devocalization) as shown in (31). This means that u-Devocalization also follows Rule (11). Other rules which are critically ordered with respect to Rule (11) include i-Assimilation and na-Dissimilation.

The following two sets of verbs illustrate the assimilation of prefix vowel *i* to stem vowel *a* or *o:*

(32) a. si-ni-as-?àz ⟶ sìnās?àz 'Ye kicked me.'
b. si-ni-?àz ⟶ sìná?àz 'He kicked me.'
c. si-gi-ni-?àz ⟶ sìgìná?àz 'They kicked me.'
d. di-di-l-?ás ⟶ dìdìì?ás 'He will move out his leg.'
e. di-di-si-ni-l-?àz ⟶ dídìsíí?àz 'You have put out your leg.'

(33) a. tà-γi-s-?ół ⟶ tàyìs?ōł 'I'm holding it.'
b. tà-γi-ni-?ół ⟶ tàγà?ōł 'You are holding it.'
c. tà-γi-?ół ⟶ tàγà?ōł 'He is holding it.'
d. tà-gi-γi-?ół ⟶ tàgīγā?ōł 'They are holding it.'

In (32) the high front vowel of *ni-* (perfective) assimilates to stem vowel *a* of -?*àz,* and in (33) the high front vowel of γ*i-* (progressive) assimilates to stem vowel *o* of -?*ół.* Notice in (32d-e) that this assimilation does not apply. If we assume that the intervening *l* blocks the i-Assimilation process, l-Vocalization should be ordered to follow i-Assimilation; on the other hand, should these two rules be in the reverse order, i-Assimilation would be blocked where *i* follows a vowel (which happens to be *i*). For now, I shall assume that the former is the case. Another point that should be mentioned with respect to the assimilation is that the intervening consonant, that is, the stem-initial consonant, is ?. Interestingly enough, there is a similar process, in fact virtually the same process, found in the noun phrase and postpositional phrase. The only difference is that the intervening consonant, the noun stem-initial or the postposition-initial consonant, across which the assimilation takes place, is γ, as shown in the following examples:

(34) a. sì-?áx-à? 'my snowshoe' *sà-?áx-à?
cf. sī-?ōh ⟶ sā?ōh 'It is lying.' *sī-?ōh
b. γī-γà nìsdzít ⟶ γāγà nìsdzít 'He is fed up with it.'
it-with he-is-fed-up
c. sī-γà nìsdzít ⟶ sāγà nìsdzít 'He is fed up with me.'
me-with he-is-fed-up
cf. nīγá 'He will grow up.' *nāγá
dīdīγácà 'He has an itch.' *dīdāγácà

Assuming that what are involved here are different boundaries, I propose the following as a rule of i-Assimilation.

Rule (12):
i-Assimilation: $i \longrightarrow a / \_\_\_ \begin{Bmatrix} \neq ? \\ \ddagger \gamma \end{Bmatrix} \begin{matrix} V \\ [-\text{high}] \end{matrix}$

Where ≠ is a verb stem boundary,
‡ is a noun stem or PP boundary.

However, it cannot be determined whether the process involved is a single rule, as assumed in Rule (12), or two separate rules. This question is based on such data as those in (35), which constitute counterexamples to Rule (12), whereas no counterexamples are readily available from nouns and postpositions.

(35) a. īs?òł 'I am chewing it.'
b. ní?òł 'You are chewing it.'
c. yí?òł 'He is chewing it.'

Apparently Rule (12) has not applied in (35b-c) despite the fact that the

structure meets the condition. Exceptions like (35) are very rare, however. On the other hand, many verbs have what Sapir called "glide vowel" ɛ in place of the assimilated vowel (*a*), as shown in the following examples:

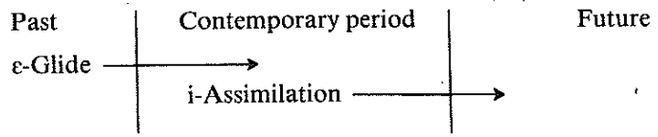
(36) a. yìᵉʔás 'He will kick it.'
b. k'āyìᵉʔóʔ 'He will untie it.'
c. nàgíᵉʔòłī 'They will bathe later on.'
d. yīᵉʔòn 'He was lying.'
e. díᵉʔóc 'Sneeze!'
f. yīᵉʔòl 'He chewed it.'

In all of these examples, there is no source of the glide vowel which appears following *i* in the environment where *i* would otherwise assimilate to the stem vowel. In other words, in (36) the "ɛ-Glide rule" applies in place of the vowel assimilation rule. This fact, together with such exceptions as (35) suggests a diachronic process of the following sort:

i > iᵉ > a

before a verb stem beginning with ʔ*a* or ʔ*o*.

Synchronically however, ɛ-Glide and i-Assimilation may be viewed as two competing rules or as a single rule which may apply in partial force (ɛ-Glide) or in full force (i-Assimilation), or may not apply at all, depending on the condition which is not normally specified in phonological descriptions (e.g., speed, style). From a diachronic point of view, the process must have started as a partial assimilation rule which may end up as a full assimilation rule when the process has run its full course. The following diagram visualizes this process:



Although there are no exact quantitative data, the available data clearly suggest that the ɛ-glide vowel appears much less frequently than the assimilated *a*, which seems to indicate that ɛ-Glide is on its way out, to be replaced by i-Assimilation.

Another interesting aspect of i-Assimilation is that it bleeds γi-Augmentation. This bleeding order explains the realization of the γi-perfective and the γ*i*-progressive as γ*a* instead of *a*, as in the following examples:

(37)
a. ni-γi-ʔó ⟶ nìγáʔō 'He has shared it.'
b. tá-ná-γi-di-γi-ʔótc ⟶ tánáyīdīγáʔōtc 'He kept lifting it.'
c. tá-ná-gi-γi-di-γi-ʔótc ⟶ tánágīyīdīdīγáʔōtc 'They kept lifting it.'
cf. tánádīγīcʔótc 'I kept lifting it'

In (37a) the γ*i*-perfective meets the structural description of Rule (11), since it is preceded by *i* and the subject of the sentence is in the third person; and, at the same time, it also meets the structural description of Rule (12), given that *i* is followed by a verb stem boundary and ʔ*ó*. The γ*i*-progressive (not the object prefix γ*i*-) in the latter two forms is also in the environment in which the two rules could mutually bleed, but the actual order obtained is Rule (12) followed by Rule (11). This case is different from the case of ɛ-Glide and i-Assimilation in that these rules actually do bleed mutually, since one rule applies in some forms and another rule applies in other forms (more will be said on this shortly).

Another rule which interacts in an interesting way with γi-Augmentation is Glide Formation Rule (6) (see also Rule [7]). In Rules (6) and (7) only stem-initial γ and γ^y are considered. To state the relevant portion of the rule, stem-initial γ becomes *y* before *i* and *w* before *u*. The point to be noted here is that stem-initial γ does not assimilate to a preceding *i* or *u*. The same segment in the prefix, however, behaves differently, γ that is, in a prefix assimilates either to a preceding high vowel or to a following high vowel. Consider the following:

(38) a. tú#γi-s-zìz ⟶ túγìsìz 'I have sipped tea.'
water-perf-I-sipped
b. tú#γi-ni-zìz ⟶ túwízìz 'You have sipped tea.'
c. tú#γi-zìz ⟶ túwìzìz 'He has sipped tea.'

In (38a), γ assimilates to a following high vowel, while in (38b-c) it assimilates to a preceding high vowel. The difficulty with this rule is that one cannot determine the direction of the assimilation. It seems that it could move either way, as in *túwìᵉʔó/túγìᵉʔó*. 'She dipped up water.' Glide Formation involving a stem-initial γ and a prefix-initial γ is essentially the same; the only difference is that the assimilation is regressive in the former, whereas it is either regressive or progressive in the latter. This fact may be explained by different boundaries.

Now the more interesting part of the discussion is that in (38c) Glide

Formation applies, but γi-Augmentation does not because of the disjunct boundary. Notice, however, the structures of (39a-c), each of which meets the structural descriptions of both of these rules. In (39a) and (39c) Glide Formation has applied, but in (39b) *γi*-Augmentation has.

(39)	a. γi-di-γi-tɬ'ìc	⟶	yìdì*yí*tɬ'ìc	'He marked it.'
	b. di-γi-tɬ'ìc	⟶	*dá*tɬ'ìc	'It is marked.'
	c. nà#γi-di-γi-tsíy	⟶	nàyìdī*yí*tsīy	'He has put up a picket.'

Forms like these provide a structure in which γi-Augmentation and Glide Formation mutually bleed. Again, there is no quantitative study, but available data clearly suggest that the prevalent order is γi-Augmentation, followed by Glide Formation where the reverse order applies in a small number of forms, which seem to be exceptions. If the frequency is any indication, it seems that γi-Augmentation is winning, since it bleeds the other more often than vice versa.

To sum up the discussion in this subsection, two sets of rules, which are competing in a diachronic view and mutually bleeding in a synchronic view, are as follows:

I. { (a) i-Assimilation
   { (b) ε-Glide
II. { (a) γ-Augmentation
    { (b) Glide Formation

I have argued for the bleeding relationship of the rules in each pair. I have also shown that rules in I must precede those in II. Note that (Ia) blocks both (IIa) and (IIb), as shown in (37), whereas (Ib) blocks only (IIa), and (IIb) still applies to the output of (Ib), as shown in (40). This suggests that γ becomes *y* not only before *i* but also before i^{ε} (where the ε-glide is tautosegmental to *i*).

(40)	a. k'āyī*yí*$^{\varepsilon}$ʔò$^{?}$	'He has untied it.'
	b. gī*yí*$^{\varepsilon}$ʔòn	'They were lying.'
	c. ts'ī*yí*$^{\varepsilon}$ʔòn	'Someone was lying.'

Particularly interesting is the mutually bleeding relationship of the two pairs of rules presented above. It has been observed that mutually bleeding rules yield dialect differences. What is observed in Sarcee indicates phonological variations that exist in one speech community.

One might argue that this rule interaction does not capture any generality from a strictly synchronic point of view, since, given the structure, one cannot tell which one of the pair will apply. But the fact is that this synchronic irregularity cannot be explained without taking what seems clearly to be a diachronic process of two "competing" rules (Wang 1969), one of which has spread over a larger portion of the lexicon than the other. I do not know whether all pairs of mutually bleeding rules reflect the diachronic fact of competing changes; if they do, one could claim that the synchronic fact of mutually bleeding relationships reveals an ongoing diachronic process.

Another rule which is crucially ordered with respect to i-Assimilation is what I call na-Dissimilation. This is the only dissimilatory process so far noted in Sarcee. This process involves two verb prefixes, namely adverbial *ná*$_{11}$- and iterative *ná*$_{10}$-. When these two homophonous prefixes are juxtaposed, *ná*$_{11}$- converts to *ni* as shown in the following examples:

(41)	a. násīskùy			'I have vomited.' (ná$_{11}$-)
	b. nīnásīskùy	⟵	nánásīskùy	'I have vomited again.' (ná$_{11}$-ná$_{10}$-)
	c. nīnáskūy	⟵	nánáskūy	'I will vomit again.' (ná$_{11}$-ná$_{10}$-)

(42)	a. nās$^{?}$í			'I am looking at it.' (ná$_{11}$-)
	b. nīnás$^{?}$ìtc	⟵	nánás$^{?}$ìtc	'I keep looking at it.' (ná$_{11}$-ná$_{10}$-)
	c. nīnánì$^{?}$ìtc	⟵	nánánì$^{?}$ìtc	'You keep looking at it.' (ná$_{11}$-ná$_{10}$-)

This dissimilation rule does not apply if the *nana* sequence is a derived string as shown in (43).

(43)	a. nà-ni-as-$^{?}$ón	⟶	nànās$^{?}$ó	'Ye have put it down.'
	b. nà-ni-ni-$^{?}$óh	⟶	nàná$^{?}$óh	'Put it down!'
	c. nà-nī-āàd-$^{?}$ón	⟶	nànáà$^{?}$ó	'We have put it down.'

In (43a) the high front vowel is deleted by i-Deletion, and the output of this rule does not undergo the dissimilation. In (43b), i-Assimilation converts the high front vowel of *ni*-imperfective (after the deletion of *ni*- [2sg]) to *a*, and neither output of this rule undergoes the dissimilation process. These facts seem to suggest that na-Dissimilation should apply before both i-Deletion and i-Assimilation. The following sums up the order of rules discussed in this subsection.

1. na-Dissimilation
2. { (a) i-Assimilation / (b) ɛ-Glide }
3. { (a) γi-Augmentation / (b) Glide Formation }
4. u-Devocalization
5. i-Deletion

11.40. DISJUNCT BOUNDARY AND PHONOLOGICAL RULES.

In Chapter 5 and elsewhere references are made to a distinction between the disjunct and conjunct boundaries or disjunct and conjunct prefixes in the verb. Li (1946) in describing what appears to be quite irregular allomorphic variation, particularly of 2sg subject prefix, made references to this distinction. In describing similar phenomena in Navajo and Tanaina, Kari (1975) proposed a rule of N-absorption, among others, which, constrained by the disjunct boundary, is believed to be a pan-Athapaskan phenomenon.

As observed in many Athapaskan languages, the disjunct boundary is placed immediately to the left of the direct object prefix, that is, position 7 in Sarcee. A few phonological and morphological characteristics that distinguish the elements to the right of the boundary (i.e., conjunct prefixes) and to the left of it (i.e., disjunct prefixes) have been observed. Phonologically, the disjunct elements have fixed lexical tones, but the conjunct elements have no fixed tone. Morphologically, the former are derivational morphemes while the latter, with the exception of the classifier and thematic prefixes, are inflectional morphemes. The incorporation of stems and postpositional constructions and distribution of adverbial elements further suggest that the disjunct prefixes may be better termed as "proclitics," in contradistinction to "prefixes."

Aside from these general characteristics that suggest two categories of morphemes, there are a few phonological and morpho-syntactic rules that make reference to the disjunct boundary. One of such rules includes γi-Augmentation discussed in this chapter. Other rules alluded to elsewhere include the cognate of Kari's N-absorption, that deletes *ni*$_2$- (2sg subject) or *ni*$_3$- (perfective in descriptive themes or imperfective in momentaneous themes). The structural descriptions to specify the deletion of the two homophonous prefix categories are not identical, but both must make reference to the disjunct boundary. In my earlier study of this phenomenon

(Cook 1971c), I failed to state the precise condition under which *ni*$_2$-deletes. This can now be stated with reference to the disjunct boundary. The underlying *ni*$_2$- is exemplified by the following two partial paradigms:

(44) a. ísdāɬ 'I'll eat berries.'
b. *nńdāɬ* 'You. . . .' (ni$_2$-)
c. yíídāɬ 'He. . . .'

(45) a. nástsìl 'I'll soak it.'
b. ná*ni*stsìl 'You. . . .' (ná$_{11}$#ni$_2$-)
c. náyìstsìl 'He. . . .'

Consider the underlying but deleted *si*$_3$- and *ni*$_3$ as well as *ni*$_2$- in the following forms:

(46) a. násìstsíl 'I am wet.'
b. násístsīl 'You. . . .' (ná$_{11}$#si$_3$-ni$_2$-s$_1$- . . .)
c. nágùstsíl 'It. . . .' (ná$_{11}$#gu-ni$_3$-Ø$_2$-s$_1$- . . .)
cf. *sì*súw 'It's sour.' *sī*gòn 'It's dry.'

(47) a. nàdìnīsʔìh 'I'll go to see him.'
b. nàdìnísʔìh 'You. . . .' (nà$_{11}$#di$_4$-ni$_3$-ni$_2$-s$_1$- . . .)
c. nàyīdìsʔìh 'He. . . .' (nà$_{11}$#γi$_7$-di$_4$-ni$_3$-Ø$_2$-s$_1$ . . .)
cf. *nī*tcōw 'It's big.' *nī*tɬ'úl 'It's long.'

The 2sg subject prefix is consistently absent in the above two sets of partial paradigms where it is preceded by a conjunct prefix that constitutes a syllable. The presence of a disjunct prefix as in (45b) does not trigger the deletion of *ni*$_2$-. As discussed elsewhere (Cook 1971a), the deletion of *ni*$_2$- raises the tone on the preceding syllable or lowers the paradigmatic tone on the stem. In the (c) forms above, where the subject is third person, the deletion of *si*$_3$- or *ni*$_3$- is constrained in the same way as that of *ni*$_2$- is. It is, therefore, apparent that the deletion of these three morphemes (and perhaps the reduction of *si*$_3$- to *s*) is governed, in general, by the same principle that makes reference to the disjunct boundary.

Considering the nature of the peg vowel, the conditions on the deletion of *ni*$_2$- (*ni*$_3$-, si$_3$-) may be stated with reference to the disjunct boundary and the requirement of a syllable in the prefix complex; that is, the surface form of a verb requires at least one syllable to the right of the disjunct boundary. This statement is obviously more general than to say that *ni*$_2$- deletes if it is preceded by a conjunct prefix which has the shape (C)V. One might find a

counterexample to the more general version of the constraint in (44b), in which ni_2- is followed by *i*, which represents the *l*-classifier. It depends, however, how the syllable is defined. It is unlikely that VV is interpreted as two syllables in Sarcee. Even if it were, the vowel *i*, which derives from the *l*-classifier, has a special phonological characteristic, not only because it is [+cons, +voc] underlying, but also because it completely assimilates to a preceding vowel. In other words, the underlying *l* cannot be realized as a vowel unless there is a vowel to assimilate to, which means that the *l*-classifier cannot constitute a syllable to which the *ni*-subject deletion rule may make reference at the time when the rule applies during the course of derivation.

Needless to say, the less general version of the constraint is observationally adequate, since ni_2- deletes as long as it is preceded by a conjunct prefix (and every conjunct prefix has the shape CV or V). In the above discussion, the more general version of the constraint is intended to provide some observation that may relate the constraints that govern the deletion of ni_2- as well as ni_3- and si_3- with reference to the disjunct boundary and peg vowel.

Although the existence of peg vowel *i* in the Sarcee verb is beyond doubt, the condition under which it occurs is not absolutely clear at the moment. The epenthetic nature of the vowel *i* in the (a) and (c) forms below is quite obvious:

(48) a.	ìstsīy	'I am crying.'
b.	nítsīy	'You....'
c.	ítsīy	'He....'
d.	īsáàtsīy	'We....'
e.	àstsīy	'Ye....'
f.	gītsīy	'They...'

(49) a.	ìstɬíz	'I'll urinate.'
b.	nīlíz	'You....'
c.	īlíz	'He....'
d.	īsáàlíz	'We....'
e.	āɬíz	'Ye....'
f.	gīlíz	'They....'

The anomalous nature of *si-* in (d) forms is dealt with in chapter 9. Why is there peg *i* where the subject prefix (*aad-*) constitutes the necessary syllable? Neither the peg vowel nor the aspect prefix (*si-*) is expected in the (d) forms. In chapter 9 it is assumed that *i* of *si-* in (d) forms is deleted by the well-

motivated i-Deletion, provided that the first vowel is peg *i*. On second thought, however, the first vowel is not peg *i;* it is the vowel of *si-* which is metathesized to avoid a sequence of three vowels (i.e., si-aad ⟶ isaad). This hypothesis does not explain the occurrence of *si-*, but it does eliminate the unexpected peg vowel. The metathesis rule suggested here is not totally ad hoc, considering a similar rule which applies to some kinship terms, for example, *sí-ts'òyā* ~ ísts'òyā 'my wife,' *ísdàzà* 'my younger sister,' *ìsúw* (sì-súw ⟶ ìssúw ⟶ ìsúw) 'my grandmother').

The peg vowel is homophonous (except surface tone) with one of the object prefixes, *i-* (3p unspecified). Compare the object prefix in the following paradigm with the peg vowel in (48–49):

(50) a.	ísīz	'I'm sipping (something, e.g. soup, tea).'	
b.	nízīz	'You are sipping it (object specified).'	
c.	ízīz	'You drink it (object unspecified).'	} homophonous
d.	ízīz	'He'll drink it (object specified).'	} homophonous
e.	gíyízīz	'They'll drink it (object specified).'	

The high-toned first vowel represents an object prefix (see chapter 5), which contrasts with the low or mid-toned *i* in (48–49), which represents a peg vowel. The tone on the conjunct prefixes, which is syntagmatically assigned (see Cook 1971a), does not always distinguish the homophonous forms, however.

This homophony has obscured the behaviour of the peg vowel with respect to the disjunct boundary, but paradigms like (51) indicate that the peg vowel insertion rule does not make reference to the disjunct boundary.

(51) a.	nàsíd	'I'm standing.' ($nà_{11}$#...)
b.	nànīzíd	'You....' ($nà_{11}$#ni_2-...)
c.	nàzíd	'He....' ($nà_{11}$#...)

The subject prefix in (b) is not deleted because there is no conjunct prefix. $nà_{11}$# is a disjunct prefix, which obviously constitutes the required syllable in (a) and (c) since there is no peg vowel. This means that the disjunct boundary is irrelevant to the peg vowel insertion rule.

The common feature of the two rules discussed above is the requirement of a syllable, either to the right of the disjunct boundary or of the word boundary.

11.50. OTHER RULES.

There are a number of low-level phonetic rules that are not discussed in this book. These include h + g ⟶ k, h + l ⟶ ɬ, h ⟶ ∅/____C, and others, as well as rules that affect tones. Some of these rules are alluded to in this book and others are described elsewhere (Cook 1971a, 1971b, and other sources).

One of the most important phonological studies that is not included in this book is the alternation of lexical and paradigmatic tones. It has been noted that H of the imperfective verb stem is lowered to M or L if the verb stem constitutes the last syllable of a command. Very little is known about the intonation contour and how it interacts with the tonal system.

Another rule that has often been alluded to, but not discussed in detail, is one that reduces the *si*-perfective to *s* or deletes it altogether. This rule apparently applies if the subject is in the third person, but no further conditions can be stated at this time. This apparently irregular allomorphy and the aberrant occurrence of *si-* in some 1pl subject forms might reveal interesting historical processes, or conversely a historical-comparative study might be able to explain these synchronic irregularities.

Notes

Notes to the Introduction

1. It is also spelled "Sarsi."
2. I attempted to teach an orthography similar to what is used in this book to a class of high school children and an adult class on the reserve during the fall of 1972 and winter of 1973. Unfortunately, however, the interest of the participants did not last long enough to achieve any satisfactory level of competence. Recently the band office and the school authorities have initiated a Sarcee language programme for school children. They have adopted a practical orthography which is more similar to English orthography.
3. *o* is not rounded as much as [o] or [ɔ], and *a* is not as high as [æ] as erroneously suggested by Leer (1979).
4. The initial *j* becomes devoiced by *s* (1sg subj.).

Notes to Chapter 1

1. Sapir's phonetic transcription for the form is [ĭstsī˙]. I interpret the length as a homorganic glide for reasons that I discussed elsewhere (see 0.42, Cook 1972). Here we have further (diachronic) evidence which supports my interpretation. That is, if the final syllable of (1) is a long vowel, the lowering process would yield *e˙* instead of *ey* which is what has happened as shown by (1b) and (1c).
2. From a strictly synchronic view, it is sometimes difficult to assign VV to two different morphemes.
3. Note also that there is no final glottal stop in these forms.
4. See 1.15 for the palatalization of γ to *y*.
5. See the following section for the labialization of γ to *w*.
6. In Li's analysis of Sapir's data, *d* (before a vowel) and ʔ (finally) alter-

nate in the majority of stems, but in a small number of stems *d* does not alternate with ʔ or it does alternate optionally. I observe in contemporary data that *d* and *t* are neutralized in favour of the latter in word-final position.

7. The alternation of γ^w and x^w is due to a voicing process which is too complicated to discuss here. See Chapter 11.
8. Lightner (1971) expresses reservation on the validity of Bach's convention on the ground that "there are not a large number of straightforward examples that require the use of this convention." However, Langacker (1969) cites several clear cases of assimilatory processes which he states in terms of mirror image rules, rules which require Bach's neighborhood convention.
9. Other phonological rules require the distinction between a prefix boundary (+) and a stem boundary (≠) as I have discussed in Cook (1971b) as well as the disjunct boundary (#) (see 11.40).

Notes to Chapter 2

1. This word is analyzable as a matrix sentence which means 'it happens again.' This leaves *tcú* alone in the post-verb position; see 4.20.
2. The absence of *zì*$_5$- (thematic) in the verb cannot be explained.
3. The vowel quality (*i* instead of *a*) along with low tone instead of high tone suggests that the penultimate syllable of this word represents a tense (past) morpheme instead of being part of the modal (see chapter 11 for "past").
4. It is interesting to note phonetic alternations observed in this postposition. In Sapir's note, this postposition is always *h* as in *sìh* 'with me,' *ìhíla* 'with it,' etc. One of the speakers that I worked with has *s* and *ɬ* as in *mìs* 'with me,' *gúɬ* 'with them.' The change of *ɬ* to *s* is virtually completed for classifier (although *ɬ* instead of *s* is heard on rare occasions), but the same change for the postposition is apparently not completed. Furthermore, *ɬ* is changed to *h* for the postposition but not for the *ɬ* classifier in the speech of Sapir's consultant (J.W.).
5. This word is in the possessed form: cf. *álíní* (4a). The *i*/*a* alternation is common.
6. The object NP is considered to be dominated by VP. This decision is not to make any claims about the constituent structure but to facilitate the discussion in terms of the two major constituent types, NP and VP.

7. Kari (personal communication) suggests that "sandhi" be used for the phenomenon described below in order to distinguish it from morphological incorporation which involves a noun or verb stem. Where a PP is involved, however, it is not always clear if the process is a sandhi or morphological incorporation.
8. There is an interesting theoretical question with respect to the underlying phonological representation of this morpheme. See Cook (1971c) for some discussion.
9. The final n̨ becomes *n* before a vowel and *h* in absolute final position (see Cook 1972) as in (39b). It is also interesting to note that the Chipewyan word *nadlį* (an apparent cognate) has the same syntactic and semantic characteristics.
10. The stem-final *n* gets deleted after a high-toned vowel in absolute final position. *l* becomes *tɬ* after *s* (see chapter 11).
11. The relative order of N and S in Table 1 is based on the preferred surface order, but the NP complementation process discussed in chapter 4 suggests that S precedes the head noun in deep structure.
12. What it really means is that there is no morphological means to express the possession of *tsò, zòs,* etc. There are of course syntactic devices to compensate for the lack of the morphological device, for example, *ìyí tsò sígò* 'this beaver is mine.' Needless to say, the meanings of "possession" involved in different devices can only be compared in a broad sense.
13. *yìná* never occurs alone as a noun, but it is not an affix either (see below).
14. What follows *átc'á* 'it proved to be, there was indeed' is a nominal predicate. This type of sentence compares very well with a cleft sentence of English. Another type of sentence which is also comparable to the cleft sentence of English is discussed in connection with NP complementation (see chapter 4).

Notes to Chapter 3

1. In Goddard's texts, *ìwá* is more frequently found than *ùwá* whereas *ìwá* is seldom heard in contemporary Sarcee. *i* is apparently assimilated to *w*.
2. The identity of this morpheme(s) is uncertain; cf. *-là* (modal, 2.11.2).
3. *-ìgùɬ* is further analyzable into *-gù* (a modal) and *ɬ* (negative). The old Athapaskan negative morpheme does not survive in Sarcee in any other

forms, but its cognates abound in other daughter languages, *ta* (Chilcotin), *ʔílè* (Chipewyan), *yile* (Hare), etc.

4. The stem of this verb is *-dīnā,* one of a small number of stems whose canonical shape is CVCV instead of typical CV(C). *-à* is probably a weakened form of modal *-áʔà* or another modal.
5. The postposition *kó* here is preceded by *ì* (pronominal prefix) which assimilates to the preceding vowel, *a.*

Notes to Chapter 4

1. There is no plausible explanation for this tone reversal.
2. The past tense suffix is recognized for the first time in this study (see chapter 10).
3. I am referring here to the "emphasis" or "focus" being added to the sentence by the process of Rule (1) or "cleft." From a strictly formal point of view, it may very well be the case that Sarcee does not need a cleft transformation as it may be accounted for in terms of the NP complementation.
4. The stem-final *g* becomes ʔ (in Sapir's data) or *k* (in mine) in absolute final position and is deleted before a consonant.

Notes to Chapter 5

1. Kari's Ahtna prefix categories include "conative" which is probably a mode rather than an aspect, but its grammatical relationship with other aspect categories is not clear.
2. *si-* in this form is apparently the *si*-imperfect prefix, but this prefix never occurs in any other form of the paradigm, nor does it occur regularly in the 1p subject forms (see chapter 9).
3. In an abstract analysis, the stem final *h* is represented as a voiceless alveolar nasal (Cook 1977). Other phonological rules such as the final n-Deletion (b) and dissimilation and assimilation (c) are discussed in chapter 11.
4. *di-* in *dini*$_4$- may be identified as the reflexive prefix (see chapter 7).
5. But it occurs in 1pl forms in other themes. This exceptional occurrence of *si-* is not adequately explained. See 5.54, and 9.10.
6. Li's list has *-tí* instead of *-tín,* indicating that the final *n* is deleted. The rule that deletes final *n* (see Rule [3f], chapter 10) is apparently blocked. Another perfective stem that behaves like the above is *-gí* (-gín) 'to travel with a pack.' These exceptions suggest that the n-Deletion rule was more general in the speech that Sapir recorded.
7. Li's (1930) stem list unfortunately missed the neuter set for 'sg sit,' which is clearly recorded by Sapir in his notes.
8. This form is homophonous with the preceding form owing to the deletion of the *si*-perfective, which is sometimes reduced to *s* (see note 11).
9. *-t* also appears in a few other stems that end in *c,* but it is not clear if the *t* has the same function.
10. The imperfective forms are marked by ∅ except for the 1pl forms (e.g., [35e]), in which *si-* (⟶ *s* before *a*) appears. Furthermore, this appearance of the aspect prefix is preceded by what appears to be a peg vowel (*i-*), despite the fact that there is a syllabic conjunct prefix *-aad* 'we' (see 11.40).
11. *si*-perfective becomes *s* in all 3p subject forms in the paradigm, and *ni*-imperfective is deleted in all 3p subject forms (see 9.10).
12. See note 11.
13. *náà-* is from *ná-i,* which suggests that either there is peg *i* (which assimilates to *a*) before *c* (⟵ s) or underlying *si-* undergoes a metathesis rule, i.e., *si* ⟶ *is* ⟶ *ac* (see 11.40).
14. According to Kari (personal communication), (42) is historically distinct from (43–45), and paradigms that contain *-zīn* and *-zíd* cannot derive from the same root.
15. Li's list has two iterative forms, *-γōtc* 'to kill several' and *-γātc* 'to kill one.' I have failed to find *-γōtc* in Sapir's original data, while *-γātc* is found in two other iterative forms meaning 'to kill several.'
16. This is the only duration theme which has a progressive stem which means 'be V-ing while moving.' Li's list also contains *-tɬìc* which is identical to A and B forms as a "continuative" stem, but Sapir's stem files do not contain any data to indicate such form.
17. The stem initial consonant of this form is underlying *ts* which is assimilated to the stem-final *j.*
18. The stem-final *n* in this perfective form recorded by Sapir is probably an old trace of stem set variation.
19. The PA nasal in this (and other) forms replaces **ȳ,* an earlier reconstruction by Krauss and Leer. See Cook (1981) for a critical evaluation of this and other reconstructions.

Notes to Chapter 6

1. The most comprehensive comparative (Na-Dene) study on the function of the classifiers and on the phonology of the classifiers is found in Krauss 1968 and Krauss 1969 respectively.
2. The derivational relationship between the primary (basic) and secondary (derived) themes is discussed in chapter 5. If the alternating classifiers in a set of related themes include zero, the theme with the zero classifier is normally the primary theme.
3. The stem of the active theme *-gìɬtc* is apparently in the *iterative* and is obviously related to the stem of (16a).
4. In his field notes (III:33), Sapir has this note: *mà-* in all these (sound themes) means 'by means of.'
5. Li's list includes *-tcùk'* 'to make a bubbling sound' which occurs with Ł, making it another exception. But upon examination of Sapir's original notes, I confirmed that *-tcùk'* is an L-verb (*màdúɬtcùk'* ⟵ *ma-di-L-tcùk'* 'it makes a bubbling sound').
6. See chapter 8 for details of pronominal prefixes.
7. This adverbial prefix which compares with English prefix *un-* as in *undo* does not occur independently of $\mathring{d}_1$-, but not vice versa.

Notes to Chapter 7

1. *-gìltc* may be related to *-gòc* 'to be black' as suggested in chapter 6 (see 6.30).
2. The use of γi_6- instead of Ø is not well understood in this construction. See 8.22 for some discussion.
3. It may be an incorporated noun stem, namely, *-ni* 'mind' which occurs in the thematic prefix position.
4. The *y* of *yá-* (*yi-á*) in this verb is an innovative form whose corresponding conservative form is γ (*γi-á*).

Notes to Chapter 8

1. In contexts where it is redundant *gi-* deletes, so that the number distinction disappears not only in the object prefix but also in the subject prefix.
2. *s* becomes palatalized to *c*. Because of this palatalization, I assume that the underlying stem initial is γ^y rather than γ (see Cook 1978b).

Notes to Chapter 9

1. Leer (1979:34) apparently believes that the so-called "delayed future" of Sarcee corresponds to the optative, but there is no evidence to substantiate this correspondence (see chapter 11).
2. This and the following form have *di-* preceding the *di-*inceptive. The identity of this prefix is yet to be determined (see 9.60).

Notes to Chapter 10

1. For our purpose a constricted vowel is to be understood as a vowel which is characterized by a glottal feature which may or may not have an independent phonemic status. I have discussed this problem elsewhere (see Cook 1981). I consistently use v for short (or reduced) vowel and V for long (or full) vowel in order to avoid confusion. Leer redundantly makes a distinction between V and V˙ before a glottal stop in PPA and uses v and V˙ for reduced and full vowels in PA. I find these notational variations very confusing.
2. See Rule (3f) for the deletion of final *n*.
3. One would expect *-dóc* here. I will comment on this class of stems shortly; see (10).
4. There is a semantic difference between these two alternating stems as discussed in chapter 5. Perhaps this stem does not belong to this class.
5. Other C-stems in Li's include *-γál* 'to roll' and *-γùɬ* 'to scratch.' These forms, however, are not progressive but imperfective stems of a seriative or durative paradigm. There are other stems in Li's list that are incorrectly identified as C-forms. With these apparent counterexamples accounted for, there is no progressive stem that ends in a sonorant.
6. Li's list contains a paradigm which appears to be an exception to the class given in (20) in that the A-final zero corresponds to the C-final *h*, not *ɬ* as expected, as shown in (i). Again, this is an error and the correct paradigm given in (ii) shows A-final *d* and C-final *ɬ*:

	A	B	C	D	
(i)	-ts'í	-ts'ī	-ts'ìh	-tc'īc	'a round object to fall'
(ii)	-ts'íd	-ts'ìd	-ts'ìɬ	-tcīc	

7. Li's list includes a D-form which has *h* as final, namely *-dlìh* 'to pray.' Again, a scrutiny of original notes proves that this is an error. No iterative form for this verb has been recorded.
8. This underlying γ apparently corresponds to PA $*\gamma^y$, which behaves like

a sibilant in another very well known rule, that is, sibilant assimilation (see Cook 1978b).

9. In some other Athapaskan languages, *c* functions as the voiceless counterpart of *y*. In Sarcee, *c* and *j* are paired in one stem as A-final and B-final respectively. In a few other stems *h* and *j* are paired in the same relationship. There is no Sarcee verb stem which shows the *c* and *y* alternation for the primary inflection. Anyway, it seems not unreasonable to assume that *c* is the voiceless counterpart of *y* as well as *j* (see 11.12).
10. The stem initial *s* becomes *c* due to C-Palatalization.
11. There is a problem with this rule because of the uncertain vowel quality of *o* (Sapir's *ǫ*). This vowel behaves like a back vowel in some stems and like a front vowel in others.
12. This stem-initial *y* derives from γ due to a rule which is essentially the same as the gliding rule discussed above.

Notes to Chapter 11

1. There are two other alternates, namely *dl* and *tɬ*, which will be discussed in connection with d-Effect; see 11.17.
2. Li also suggests (1930:25) that *c* is the contraction of *t* plus γ or *z*. This may be historically true, but there is no synchronic evidence for such a contraction.
3. It is worthwhile to note a cognate process in other Athapaskan languages. For example, both Navajo (see Sapir and Hoijer 1967) and Chiricahua Apache (Hoijer 1946) have a similar assimilatory process which is apparently a cognate process of C-Palatalization. In these Apachean languages nonpalatals become palatalized and palatals become depalatalized as shown by the following Chiricahua Apache examples (Hoijer 1946):

(i)	sí-ǹ-tcá	⟶ cí-ǹ-tcá	'You've buried it.'
(ii)	nà˙-djì˙s-bí	⟶ nà˙-dzì˙s-bí	'He has swum.'

4. The three dots represent any segment or segments within a word. I have not examined the exact details which are not directly relevant to the problem under discussion.
5. Li suggests that stem-initial *j* also undergoes the same d-Effect process as *y* and γ^{y}. However, there is no attested example. Furthermore, the

status of stem-initial *j* is questionable. Recall that stem-initial *c* (voiceless counterpart of *j*) is derivable in terms of s-Palatalization, that is, s + y ⟶ c.

6. This form also suggests a metathesis rule (i.e., á-sì-. . . ⟶ á-ìs-. . . ⟶ áàs-. . .).
7. The d-classifier may also be deleted by Rule (9), and if so Rule (8) has to be revised.

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